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PREPARING CRISIS RELOCATION PLANNING EMERGENCY PUBLIC INFORMATION

THIS GUIDE IS PART OF A SERIES OF DOCUMENTS DESIGNED TO PROVIDE BASIC PLANNING GUIDANCE AND RESOURCE DATA TO DCPA AND STATE PERSONNEL IN DEVELOPING PLANS FOR NUCLEAR CIVIL PROTECTION.

DEPARTMENT OF DEFENSE
DEFENSE CIVIL PREPAREDNESS AGENCY

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PREPARING CRISIS RELOCATION PLANNING

EMERGENCY PUBLIC INFORMATION

Defense Civil Preparedness Agency

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Introduction

So now you've got a workable allocation of risk area population to host areas. It's an important stepping stone toward the eventual fully planned and coordinated movement of the general population and key personnel from risk areas to "safe" locations and proper care for them there--the goal of the detailed crisis relocation planning (CRP) still to come for risk and host areas.

But what if a nuclear confrontation forced you to use what you have now? Your plan would be just so much paper unless you could communicate with the people whose lives would be in jeopardy, and tell them what to do.

That's the purpose of this section--to provide guidelines and some of the nuts and bolts to help you construct a skeleton crisis information plan on which you can put more planning "meat" as your work progresses. In a nuclear confrontation, when crisis planning would be greatly accelerated, such a basic information plan would be invaluable to build on. Even now, there is much useful information that can be given to the general public.

Research on public response to a crisis indicates that people will respond much more rationally and calmly to a threat they understand. Thus, millions of Americans over the years have followed governmental instructions and evacuated ahead of threatened floods or hurricanes because they knew the threat from common experience.

People have no such reservoir of knowledge when it comes to the threat of a nuclear attack. Indeed, most people probably believe there is not much they can do to save themselves should a nuclear war erupt--that it means "the end of the world."

If Americans are to respond rationally and quickly to governmental instructions to leave their familiar and seemingly safe home surroundings for an unknown host area, and if host area residents are to accept and help these strangers in their midst, several attitudes must exist or be encouraged:

1. They must believe that a nuclear attack on the United States is a real possibility, that warnings from political leaders are credible, that survival instructions are necessary.

2. They must believe that, contrary to some doomsday prophets, there are many practical measures that can be taken to greatly increase one's chances of surviving a nuclear attack. These are the same measures the Soviet Union, Sweden, Switzerland, and other nations with advanced civil defense organizations have been preaching and practicing for years. Defeatist attitudes result from either lack of knowledge, or a personal copout.

3. They must understand that, while no one can guarantee any one person's survival, the best chance for survival of the great majority of people is for everyone to work together. Government can provide know-how, and some resources, toward providing habitable, fallout-protected shelters for evacuees in host areas. Much of the work to accomplish this, however, will be done by evacuees, and host area residents, helping themselves and each other. There is no survival silver platter.

Peacetime and Early Crisis Information

To encourage the above attitudes, and to make sure crisis instructions do not confront the general public with a wholly new undigested idea, it is important to provide generalized survival information in a CRP emergency public information (EPI) package. In peacetime, appropriate information should be provided to the mass media or the general public upon request, and the publication or broadcast of such material encouraged so the general public can become familiar with the problems involved.

As a nuclear crisis situation develops, it is vitally important that all media be used, that the message reach the public frequently, redundantly, and in many formats. The more time, and the more exposure, the public gets to assimilate the raw facts of survival, the less wrenching will be the psychological shifting of gears that will inevitably result if the world situation becomes so bad that instructions to take shelter or evacuate must be given.

The most important general survival information source for the public in either peacetime or early crisis periods is DCPA's familiar handbook, "In Time of Emergency" (H-14). Some 26 million copies have been printed and distributed since it was first published in 1968. In any CRP emergency public information plan, distribution of this handbook to the public should be planned within the limitations of time and copies available. It might be particularly useful as a handout to evacuees arriving in host areas. The H-14 handbook is available in Spanish, too.

Because there may be severe limitations of both time and printed materials in an actual nuclear emergency, and because the public would need to be informed through many different channels, generalized survival information based on the H-14 handbook has been prepared in many different formats. This available and releasable material could be included by planners in their EPI package for immediate or deferred use by the media or local officials responsible for informing and/or instructing the public.

Tabs to this guidance describe the various materials available:

Tab A: "Fact Sheet on Nuclear Civil Protection (NCP) Planning" issued by the Defense Civil Preparedness Agency in March 1976. This can be used by NCP planners during the planning process to answer general public or media queries on what they are doing, and how it relates to government efforts to prepare the Nation for any nuclear confrontation. The Fact Sheet may also be included in the EPI portion of the plan itself to assist officials in explaining the background of government programs and actions to cope with a nuclear crisis.

Tab B: The 10 articles in reproduction proof form from the "in Time of Emergency Newspaper Kit" (K-43). The original K-43 kit, with mats, was issued by DCPA's predecessor, the Office of Civil Defense, in 1968 to State and local civil defense directors, with a request that the material be hand-carried by them to newspaper editors to be prepositioned for nuclear crisis use (or peacetime use if desired). Some--probably not many--newspapers may still have this material in their files. It is included in this package as still-usable generalized survival information for the population which could be quickly printed in newspapers during a crisis buildup period.

Since the newspaper kit was originally distributed, technological change within the newspaper industry has made issuance of mats unnecessary. Reliable newspaper industry sources report that nearly 1,500 of the Nation's more than 1,800 daily newspapers, and some 90 percent of upwards of 9,300 newspapers printed weekly, biweekly, or triweekly in the united States, use either offset printing or some other kind of cold-type printing process now requiring mats to reproduce this material.

Tab C: Supplementing Article 4 from the "In Time of Emergency Newspaper Kit" on permanent-type shelters which could be built in peacetime are two additional non-basement shelter designs (H-12-1 and H-12-2) developed since the Kit was issued. Both provide fallout protection of at least PF 40, and the H-12-1 shelter also offers significant tornado protection and 5 psi (pounds per square inch) blast protection. These booklets are available by writing to: Civil Defense, U.S. Army Publications Center, 2800 Eastern Boulevard, Baltimore, Maryland 21220.

Tab D: Supplementing Article 5 from the Newspaper Kit is a collection of upgradable and expedient fallout shelter plans and other expedient survival measures. These materials can be considered one source in preparing EPI packages to go with host-area crisis relocation plans. They are not, however, intended for public release except during a nuclear crisis period,

because improvised shelters [1/] are not as good as permanent shelters, and peacetime release of such information would tend to discourage construction of more adequate shelters. Continuing research on other expedient shelters will result in more refined source publications on this subject as data become available.

Generalized survival information for the electronic and audio-visual media is also available for use either during peacetime or the early crisis period (before the President decides on a take-cover or relocation mode of action). These widely distributed "canned" information materials include:

1. The "In Time of Emergency" film, a 16-mm, 26-minute public information motion picture of nuclear emergency instructions. The format is suitable for use before groups, in classes, or on television, the latter being especially valuable during an early crisis period when people will need fast training in survival measures. Since 1970, when the film was produced, 800 prints have been distributed to DCPA regional offices, State and some local civil defense offices, and the Army Pictorial Service's film library for loans. A replacement film will be produced within the next two years, but even the existing film is highly useful and reasonably up to date.

2. Two "In Time of Emergency" radio kits were produced in 1970, and 7,500 transcriptions of each kit were recorded and distributed to radio stations nationwide to be held on a standby basis. Radio Kit #1 consists of ten 60-second announcements on the following topics: RADIOACTIVE FALLOUT, ATTACK WARNING, IF CAUGHT IN THE OPEN, PUBLIC SHELTER SIGN, IMPROVISING FALLOUT PROTECTION (HOMES WITH BASEMENTS), IMPROVISING FALLOUT PROTECTION (HOMES WITHOUT BASEMENTS), WHAT TO TAKE TO SHELTER, EMERGENCY WATER SUPPLY, FIRE HAZARDS, and FOLLOW OFFICIAL INSTRUCTIONS.

Radio Kit #2 consists of six emergency information radio transcriptions of varying lengths: MAIN HAZARDS OF NUCLEAR ATTACK (4 minutes, 58 seconds); FIRE PREVENTION, FIREFIGHTING (3:47); ATTACK WARNING (2:57); WHERE TO FIND SHELTER--WHAT TO TAKE ALONG (2:19); IMPROVISING FALLOUT PROTECTION (6:56), and FOOD AND WATER (4:40). Most of the Radio Kit #2 announcements are too long for probable use on radio in peacetime, but they would very likely be used during a crisis period when commercial air time would not be such a critical factor. Transcriptions of these spots are available through DCPA regional offices.

[1/] To clarify a widespread misunderstanding, it should be noted that the umbrella term "Improved Shelters" covers both "Upgradable Shelter" and "Expedient Shelter." The distinction between the two has nothing to do with whether they are inside or outside a structure (both can be either inside or outside). The proper distinction is that Upgradable Shelters start with some potentially shelter-usable structure that can be upgraded; e.g., piling earth inside or outside a house. Expedient Shelters are created from materials at hand; e.g., a basement fallout shelter made with tables, doors, bricks, books, etc., or an outside lean-to shelter made of similar materials. See also Tab G for material on this subject suitable for publication.

Advanced Nuclear Crisis Information

When or if a nuclear crisis situation reaches a stage where the President deems it advisable for the general public to take some action, he will presumably determine the risk areas where the population will be told to take shelter where they are, and/or risk areas where it is deemed advisable for the population to relocate. When this happens, it is a wholly different emergency public information ballgame.

In determining the EPI actions to take, it is first important to know who will be the official(s) actually responsible for giving instructions to evacuate. The President will determine when and where evacuation or take cover operations will take place, depending on the nature of the threat. In implementing the President's decision, however, each State Governor will be asked to tell the populace to take cover or relocate under the State's existing emergency powers. Under laws of the majority of States, such actions could be compulsory, but not in all States.

Therefore, it is vitally important that Crisis Relocation Plans include guidance (coordinated in each State with the Governor's press secretary) on what such an emergency message by the Governor should contain. Guidelines should include the following:

1. The Governor should cite his legal authority to urge or direct the take cover or evacuation measures which he will then announce in his message. If possible, he should be unequivocal in stating what actions he wants taken and the legal basis for it.

2. Since the President will presumably be speaking to the people via national radio and television networks or the Emergency Broadcast System to acquaint them with the national or international context of the crisis, there is no need for the Governor to go into such details. Rather, his message should be rather brief, leaving the explanation of detailed survival actions, traffic routes, reception areas, etc., to risk area and host area officials.

3. The Governor should describe the probable nature of the threat to his State, areas likely to be affected, and the impact of the movement of evacuees from in-State or out-of-State risk areas into host areas within the State. In this connection, special appeals by the Governor would be in order--such as urging quick but rational response to local evacuation orders by risk area populations, and an appeal to host area residents to accept and work with the evacuees, both in their mutual self-interest and in a spirit of brotherhood by imagining themselves in the evacuees' position. A strong stand should be voiced against regionalism or parochial thinking by which host area residents might be tempted to accept one area's residents, or race, or socio-economic group into their area, while rejecting some others. The Governor might point out that similar evacuations brought on by natural calamities such as floods or hurricanes have been highly successful in the past, when Americans have shown they will work together against a common danger.

State-Level Emergency Public Information

The crisis relocation planning (CRP) process provides for a phased sequence of activity. In general, this starts with State-level allocation and operational planning (Part 1), and goes on to risk area-by-risk area allocation work, with a major output being EPI material for each risk area (Part 2). Then it proceeds to operational planning for host (Part 3) and for risk jurisdictions (Part 4), including planning for EPI operations in each.

This planning process will extend over several years--perhaps two or three years for a given risk area, and up to six or seven years for a given State. It is possible, though not likely, that a crisis could arise before planning is completed. It is therefore essential that States and local jurisdictions be prepared to provide the best emergency public information possible at any time, should a severe crisis occur while planning is still in process and should crisis relocation be a desirable response nationally.

The first phase of planning produces a State-wide allocation of population from risk to host areas. "State EPI materials" should therefore be prepared based upon this allocation. These initial EPI items should include a State map which shows the host areas tentatively designated for each risk area, together with general information for the public. The latter general information should be of the type illustrated in Tabs B through G.

This initial, State-wide EPI material is rather rudimentary in nature, because detailed risk-are allocations have not yet been developed. Thus the materials can only show that 16 specific counties, for example, are set aside for the residents of risk area "X"; they cannot show that people from the Northwest part of the city should go to certain counties, over specified highways, because planning has not yet progressed to that stage. It is quite possible, even likely, that these items would not be used should a severe crisis arise. However, it is also possible that crisis relocation might be decided upon as a nationwide response, in which case the initial State-wide materials would be all that would be available.

Obviously, as planning proceeds, the initial, rudimentary State-wide EPI should be progressively replaced by more detailed informational materials as they are produced for each of the risk areas in the State in Part 2 planning. However, most of the publishable survival information included in the initial State-wide EPI should still be usable in the more detailed risk area EPI materials. The general approach here will be to add more detail, such as the routes which people from the various parts of the risk area should use to travel to specific destinations. Tab H shows one way in which evacuation routes and relocation assignments may be depicted in map form.

Thus, little of the effort invested in preparing the State-wide Emergency Public Information package will be wasted. These initial materials will also have provided an interim EPI capability, however rudimentary, during the one or more years required to produce more detailed risk area-by-risk area EPI items.

Risk Area Emergency Public Information

The primary emergency information mission in risk areas is to tell people where to go and what to do. The message must be simple, compatible with the public's concern, and repeated often through all available media. If evacuation is directed, there will be no time for extensive survival education of the public (hopefully, that will have been done in the peacetime or early crisis periods, but if not, it will have to be done in the host areas). Again, the risk area emergency information message should consist of where to go, how to get there, and what to take. In addition, the risk area populace will need to know who will be relocated, why they should move, what to do about special problems like pets, and for people without cars, where public transportation will be available.

There are three audiences in the risk area for emergency relocation instructions. These are: (1) the government agencies, private businesses, and institutions that have been assigned specific relocation headquarters; (2) persons in the general public requiring transportation; and (3) the remaining general public.

The first group should get their instructions and supporting information through the organizations for which they work. The instructions should reflect not only general survival information, but specific directions, based on the allocation results, to the relocation sites within commuting distance of the city. The vehicle for these instructions should be the normal form of communications within the organization--usually a memorandum of instruction from management to employees. Laying the groundwork is just as important in the organizational context as with the general public. Thus, as initial announcement that certain arrangements have been made for use in a remote contingency might be issued at any time following the allocation. The announcement should make clear that the instructions it contains are not locked in concrete, and are subject to rapid change and upgrading during a crisis. Because employees of key industries and their families will likely interchange much survival information with neighbors, friends, and others, care should be exercised to make sure the instructions sent through private channels to key employees and their dependents are consistent with survival instructions to the general public.

The general public, including those without private transportation, will receive their relocation instructions mainly through the mass media. It can be assumed that a decision to relocate during a nuclear crisis would be a news story of major proportions, and arrangements must be made to work with reporters (see pages 14 and 15 for a checklist of practical problems involved in working with media). The most important advance arrangement that can be made is to appoint a local public information director responsible for joint emergency information planning with local media. Sometimes this will be the mayor's or county executive's press secretary, but if not, the appointee should be coordinated with the press secretary.) When a nuclear crisis occurs, then, the media representatives have already learned who to deal with, and will follow plans partly of their own creation. Experience in peacetime

disasters has shown repeatedly that this system works. Bear in mind that an important source of coordination with local broadcast media is through the local Emergency Broadcast System coordinator, a volunteer official (usually a local station manager or news director) appointed by the Federal Communications Commission. In each State, there also is a statewide EBS coordinator.

The most important local emergency information vehicle in passing relocation instructions to the populace will be a newspaper supplement containing instructions, including maps, on how to get to the assigned host area(s), what to take along, how to secure one's home, and reassurance that homes in the risk area will be protected by remaining police, firemen, National Guard, etc., from normal theft or fire hazards. More detailed DO's and DON'Ts for preparing a newspaper supplement are included in a subsequent section of this guidance, "The Newspaper Supplement - Some Nuts and Bolts." Priority should be given to the newspaper supplement over any other form of printed survival information. With the ready availability of local newspaper presses and trained editorial and printing personnel accustomed to working on short deadlines, you can get out printed survival information faster and cheaper this way than any other. Research has shown that it is important for the public to have printed instructions in hand for ready reference and more complete assimilation of information.

Because an acute crisis may not allow time to put out a newspaper supplement, and for added saturation of the general public with evacuation instructions, it is also important to have one or more maps designed for television use by local risk area officials to show and tell the public specifically how to evacuate. Normally, such a telecast would immediately follow the Governor's message already discussed. The map for TV use should have the following specifications:

1. It should be at least 3 X 4 feet horizontal, on light blue or gray paper (preferably mounted on stiff board for optimum TV image). North should always be straight up.

2. Use basic TV colors--black, blue, red, or green--or their non-pastel derivatives. Even black and white TV sets will then distinguish shades of gray, and viewers with color sets will be clearly helped by use of color.

3. Evacuation routes should be solid color, a different one for each route. The population of each major section of a risk area city should be told to go to only one host area, with only one or two major highways shown for their use (persons with thorough knowledge of secondary routes to the assigned host area should be encouraged to use them, however, to lessen traffic congestion). Boundaries of each major section--visible, geographical features such as major streets, railroads, or waterways--should be dashed lines.

4. Restrict lettering to labeling of the major sectional boundaries, the number or name of each major section to be evacuated, and the major routes to be used. Don't show lesser routes. For easy reading, lettering should be in 30-point type or larger. Generous white space should be provided at map edges to letter in host area destinations of each evacuation route where it goes off the map.

Local risk area officials giving evacuation instructions to the public should discuss each major section to be evacuated as the TV camera comes in close on that section of the large map. Relate each risk area section to its assigned host area, using a statewide or regional map if possible (from which extraneous details have been blocked out) to connect the two in terms of miles distant, driving time, and places to report on reaching each host area (if the latter is known). Avoid lengthy descriptions of host area details--those should be given to evacuees by host area officials on arrival. Brief information on what to expect in the host area, if known, should be presented in a positive manner but should not "oversell" the facilities there. If there is considerable uncertainty as to what has been planned in the host area and/or what will be provided, then the messages should stress that these services may be there, or probably are there. If no services are likely, but the relocation area offers good, basic protection, that should be stressed in the message. Also stress self-help, which may include the need to take along as much food as can be carried. Tab E contains recommendations on how to do this.[2/] There is a need for basic items in host areas such as shovels, picks, pails and baskets, work gloves, etc., for building shelter. Also needed are as many of the shelter supply items as feasible (see checklist, Tab F).

[2/] The U.S. Department of Agriculture (USDA) Home and Garden Bulletin No. 77, Family Food Stockpile for Survival (Tab E), was last revised in 1972. Consequently, there are minor instances of obsolescence in the booklet, including use of DCPA's former agency name, the Office of Civil Defense, and a reference on page 16 to the publication Civil Defense (MP-54), which is now out of print. However, the information within the booklet is just as useful as ever for householders planning to stockpile food for use either (a) during a stay in a fallout shelter, or (b) when they are relocated to a safer area.

Refer the viewers to the risk area newspaper supplement for additional details and to assure that the public will have the information in a retainable and portable form.[3/] Radio stations should be encouraged to direct the public's attention to the emergency telecasts and newspaper supplement. In areas with large numbers of non-English speaking persons, printed and broadcast information and instructions should be disseminated in the ethnic language as well as English.

Radio is limited in its ability to transmit detailed information. However, there are two roles radio is uniquely qualified to fill:

1. To maintain contact with evacuees while they are on the road, provide last-minute directions or changes of directions on host area reporting points, report on traffic conditions and any causes of delay, broadcast information which the host area government wishes evacuees to receive, and to convey reassurances that the homes the evacuees left behind are being protected by various security services. The most powerful risk area station should be used for this. In a crisis, its messages should frequently tell where they are originating to avoid confusion with other risk areas.

2. Radio, through its familiar listener call-in program format, could also serve as a valuable mass information exchange. The great bulk of risk-area listeners will have the same questions. A knowledgeable government official, speaking on a local EBS network or at a key station (to which other stations would be referring listeners for answers to questions) would, each time he answered a question, in effect be answering thousands of similar queries. Such a system would be especially valuable in telling persons without cars where transportation pickup points are in telling persons without cars where transportation pickup points are located, for all efforts must be made to get this information to such persons. The same technique could be used for rumor control and dispelling false reports, and in host areas, too. Emergency telephone numbers should be set up and widely publicized in the risk area, but the public should be

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[3/] While the broadcast media play an important role in any EPI plan, it is very important to use printed media also as an alternate method of reaching the public. Not only are printed instructions retainable and portable, but they might also be the only way to transmit your message if a nuclear detonation occurred during relocation, and the resulting Electromagnetic Pulse (EMP) knocked out many electrical communications. EMP is a very brief but intensely strong electrical pulse from a nuclear detonation which is produced in various electronic or electrical equipment and is capable of knocking out some of that equipment including radios and televisions with external antennas--even perhaps car radios. Battery-operated portable transistor radios would not be affected, so the public should be urged to keep such radios with fresh batteries close at hand.

strongly encouraged to use them only as they would the "911" emergency number of many communities; that is, for truly emergency situations or out-of-the-ordinary questions. The telephone numbers of the key station selected to provide this service should be widely publicized. Planners should seek advance agreement among risk-area radio stations on which station would perform this service and what special telephone or other facilities would be needed.

A brief message, by all available media, should be directed by officials to that fraction of the risk-area population who would refuse to leave their homes (the estimated 20 percent could be refined by traffic counts on evacuation routes). The message should stress the likely absence of even the most rudimentary services in the risk area, and the potential nuclear attack hazard. "Stay-puts" should not be mentioned in preevacuation information materials, to avoid appearing to offer a stay-in-place option. Even after the main exodus, they should be told of staging area locations and offered help to get there. Any who still remained should be advised of curfew and other control regulations and warned not to engage in criminal activity. Ultimately, they may need to be warned to seek shelter from attack.

EPI materials for risk areas should tell people who have "their own place to go"--such as a vacation cabin, or friends or relatives in reasonably nearby host areas--to go there. Realistically, it would be difficult if not impossible to prevent people from going to "their own place." More importantly, most people who stay with relatives or in their own cabin would be more self-sufficient than those who arrived in host areas as evacuees--needing a considerable degree of organized assistance. Thus, going to one's own place (if and where feasible) should be encouraged, not discouraged.

The foregoing risk-area emergency information guidance assumes a crisis buildup period in which there would be time to get relocation or stay-in-place instructions to the public and 72 hours or more for the public to act on them. An attack "out of the blue" is considered unlikely, mainly because of the time it would take an enemy country to evacuate its own population to relative safety, and because diplomatic moves likely would precede such a drastic action for all sides. Still, a sudden nuclear attack on the United States is not inconceivable. For this reason, there should be as wide dissemination as possible in peacetime and the early crisis period of the meaning of the attack warning take cover signal (a 3- to 5-minute wavering siren tone or intermittent whistle blasts). For the newspaper supplement, material could be drawn from Article 2 of the "In Time of Emergency Newspaper Kit" (see Tab B). It is not necessary to include the Attention or Alert Signal (3- to 5-minute steady tone) in any information for the public, because it refers to getting public attention in a peacetime emergency.

A final word of caution: emergency information materials prepared by planners for either risk area or host area use (especially at the Parts 1 and 2 stages) should never be considered locked-in or unchangeable. They should evolve to reflect new planning data, changes in procedures, or new circumstances in the communities for which the plan is designed.

Host Area Emergency Public Information

There are three basic audiences planners must reach with emergency public information in host areas. These are: (1) The general public normally living in the host area; (2) Persons from a risk area being relocated into a host area; and (3) The essential risk area industries and services temporarily located in the host area which are designated to remain operating in the risk area on a commuting basis during the relocation. Persons working for these organizations would get their instructions and supporting information from their employer. Plans should provide for the maximum feasible number of employees (including dependents) of an essential organization to relocate in the same close-in host area, rather than just predesignated "key" workers, to allow management flexibility in determining who are the actual "key" workers.

Planners need to provide the host area permanent residents with all of the information necessary to relocate and help support people arriving from the risk area. Among the important messages which should be directed at host area residents are:

A. How to prepare for the arrival of the risk area evacuees and how the host area government proposes to meet their basic needs.

B. An appeal for host area residents, especially those with basements, to volunteer living and shelter space in their home for some of the incoming evacuees.

C. The location of public fallout shelter facilities in the host area, and a discussion of the extent to which host area residents should rely on their own homes for shelter versus the use of shelters identified in the National Fallout Shelter Survey.

D. How to upgrade structures such as home basements, stores, schools and church buildings, etc. to improve their fallout protection, or to create expedient shelter.

E. What host area facilities and functions may need to be halted as a result of the CRP for the duration of the relocation.

F. How the host area residents' living routine will change during the relocation despite official efforts to maintain as normal a way of life as circumstances will permit.

G. Appropriate generalized survival information such as that contained in Tabs B through G. In addition, the "In Time of Emergency" audio-visual materials described on page 4 would be important to early media coverage of the crisis.

H. Specialized survival information for farmers (see Tab I).[4/]

Planners need to provide the risk area evacuees arriving in the host area with the same generalized survival information, but the localized information the relocatees will need will vary substantially from that for permanent residents. The evacuees need to be told:

A. Where their reception center is upon arriving in the host area, and how to get there.

B. Where their finally assigned living space is located, and what to do there.

C. Where their assigned shelter space is located, and how to get there.

D. How to improve the fallout protection potential of that shelter space, if necessary.

E. Work assignments in the host area.

F. News and information on the status of the crisis, conditions back home, and the location and well being of friends and relatives.

G. Information on the likelihood of and/or plans for returning home.

Planners should particularly avoid two pitfalls in devising emergency information materials for host area audiences, or the risk area populace involved in relocation. First, any attempts to downplay the possibility of crisis relocation or to withhold information "until later" will jeopardize the credibility of local spokesmen and make the instructions they provide to the citizenry less believable. Second, be sure there is enough coordination between the risk area EPI materials and those of the various host areas so potential evacuees can be told approximately where in the host area is their initial destination. Otherwise, evacuees might resist leaving the seeming "security" of their homes to venture into "nowhere."

[4/] This is a USDA publication, Defense Against Radioactive Fallout on the Farm (Farmers Bulletin 2107), which was published in 1965 but is still up to date except for its reference to the Office of Civil Defense.

The mass media would be the principal means of reaching both the host area residents and relocatees. All types of media should be used, with frequent repeating of information and key instructions, including cable television, piped-in music systems, and loudspeaker vehicles. Bulletin boards and signs in important congregate-care facilities and reception centers should augment radio, TV, newspapers, and other media, especially in directing groups of people to their temporary living spaces, to fallout shelter areas, and later, to report on names and whereabouts of relatives and friends.

One problem is the need for a simple, quick, and foolproof way of conveniently dividing up the incoming horde of risk area evacuees to facilitate assignment to reception centers. This is especially important in spreading the carloads of evacuees evenly over a number of reception centers located off the main incoming evacuation routes. This must be done without halting traffic on the evacuation highways to give instructions, or miles-long traffic jams could result.

One possible way to do this would be for risk area newspaper supplements, and TV and radio to announce before evacuation and enroute that each driver/evacuee should memorize the last digit of his auto license number. He would be asked to look along the roadside in the host area for the sign with that number. Large preprinted signs could be posted along the main incoming evacuation routes, each sign consisting of a number from 0 to 9, with an arrow pointing left or right down the road leading from the main highway to the reception center. (For example, drivers having licenses ending in "7" would look for the sign with the large "7" on it leading to Reception Center #7 in _____ County or City.[5/] The arrow on the sign would tell them whether to turn right or left. Drivers would be instructed not to stop, but to follow signs directly to their numbered reception center.) Later, when the order to return home is given, the same "last digit on the license" system could be announced to space out return traffic to the risk area. Police enforcement of the order, if desired, would be facilitated by the easily-seen license numbers.

Regardless of the means of public communication used, it is vital that all host-area emergency information originate from a single point, usually the emergency operating center. Only in this way can conflicting, uncoordinated, inaccurate instructions to the public be held to a minimum. No news medium should originate unofficial instructions to the public. EPI planning in host areas should therefore address itself in detail to a series of questions involving governmental arrangements for getting out the word, and servicing inquiries from the public:

[5/] In some parts of the U.S., especially highly urbanized areas of the Eastern Seaboard and elsewhere, people often don't think in terms of counties as host area destinations as they would larger towns. Planners should determine whether counties, or towns within counties, would make more understandable evacuee destinations. For most areas, it is recommended that both designations be used; e.g., "Canon City (Fremont County)."

1. Has an official spokesman been appointed?

2. Where is he located (in the EOC or elsewhere)? What are his telephone numbers? Are there other ways to reach him? Do all the mass media know this?

3. How, and by whom, will the spokesman be provided with up-to-the-minute operational information?

4. What clearance procedure must the spokesman follow before he can release information to the news media? Who is the final approving authority for the host area government and where is he located?

5. Is the procedure for providing the spokesman with releasable information simple and efficient or will it cause delay?

6. Will news media representatives need passes to see the spokesman, get into the news briefing, visit the EOC, or enter restricted areas?

7. If so, have the passes been issued? How do news media representatives get passes? Do they know this? Are police, firemen, and other emergency personnel familiar with the pass system?

8. How many news representatives might be expected? Will the physical facilities of the EOC or other central news point support this need? (This refers not only to space, but such problems as electrical circuits adequate for TV lights, or convenient places to park mobile units.) Are telephones available that media representatives can use? Do direct broadcast links exist between the EOC and local radio or TV stations?

9. Will officials be available through press conferences, or will the host area government rely entirely on a spokesman or news releases?

10. Who will handle telephone queries from out-of-the area news media?

11. Will a knowledgeable official be available to go to a local radio or TV station to answer telephone inquiries from the public, such as described on page 10? Will telephone numbers be widely publicized where the public can ask questions of a "single case" sort, or inquire about possible disaster victims or missing family members? Who will compile such lists?

12. How will time-critical messages to the public involving saving life or preserving property be transmitted to the people? If by radio and/or TV, how will the message get to the stations?

All of this implies a very high degree of cooperation between the news media and local governmental authorities, and in the public interest, possibly some voluntary restriction on the media's accustomed freedom of action. Among questions requiring discussion between the media and government might be:

1. Would all radio or television stations remaining on the air result in conflicting or confusing instructions to the public as, for example, "foreign" broadcast signals picked up by a community antenna television system (CATV) from stations serving a different area? How could CATV systems best contribute to disseminating survival instructions to the areas they serve? What programming techniques could avoid possible confusion (e.g., stations frequently identifying themselves and their location during crisis broadcasting, and also identifying the audience they are trying to reach)?

2. Would it be necessary to temporarily discontinue all routine TV and radio programming during the preparation and relocating period to stress the seriousness of the crisis situation, and maintain a state of awareness? Without question, after the relocation is complete, normal programming should resume to the extent possible to provide some level of entertainment to ease the tension of the emergency. How can a division of responsibility be arranged so stations most suited to a task could be used for certain jobs (e.g., the most powerful station should be used to reach evacuees while on the road)?

3. Will the possibility that host area media may be asked to include on their staffs some risk area media personnel while the risk area population is relocated cause serious problems? This could serve two purposes: (A) To augment the staffs of host area broadcast stations and newspapers to help meet the greatly increased need for information to a vastly expanded population, and (B) to reassure the relocated populace should be encouraged to lend authenticity to survival instructions enroute to the host area and while there, to report news back home, and later to provide instructions for the return home. If possible, certain broadcast and newspaper personnel should also remain near the risk area so they may report via their own media outlets or those in the host area on conditions at home.

4. Is there likely to be a problem over the fact that there are no provisions for any Federal payment (nor probably State or local either) to broadcast or print media for costs related to information dissemination to the public in a nuclear emergency? Presumably, the media will consider the need for crisis information of such paramount importance to their readers or listeners that no payment will be asked (few media executives will fail to recognize the public relations disaster which befall them for refusing to put out life-saving instructions to their readers or listeners during a nuclear crisis).

Obviously, these matters cannot be allowed to drift along until a crisis comes. Crisis relocation planners and government officials (especially public information officers) should make every effort to secure advance local voluntary media agreements, with media input, to minimize these problems.

Probably the most sensitive single EPI problem which will face host area authorities will involve the likely need for some evacuees to stay temporarily in private homes. DCPA policy is that crisis relocation plans will not contemplate or provide for any type of mandatory housing of evacuees in private residences in host areas. However, voluntary efforts by residents to accommodate evacuees will be encouraged (based on the fact that a great deal of such voluntary sharing occurs in peacetime disasters).

Assuming that State-level and/or host jurisdiction plans include provision for urging host area residents to offer to accommodate evacuees, a number of EPI issues are raised. Specifically, a number of rather obvious questions, as outlined below, are posed for which planners must work out locally-agreed answers:

1. How do I volunteer space in my home?

2. How many people should I reasonably take?

3. As a host area householder, what added supplies and equipment will I need for my family? For my temporary guests? Where will I get them? Who will pay for them?

4. What can I reasonably expect the evacuated persons from the risk area to furnish for themselves?

5. What would be a reasonable way to divide space in my home between my own needs and those of the evacuees? Is there any rule of thumb such as square feet per person, rooms per family, or any other guide?

6. Are there any suggested ground rules for communal living, such as for eating, sleeping, use of sanitary facilities, etc.? as the owner of the house, would it be up to me to set the ground rules, or will suggested guidelines be published?

7. Should evacuees be given a choice, if available, for staying in private homes or congregate care facilities?

As noted earlier, the extra "trouble" that the flood of evacuees might pose in the eyes of permanent residents could well be offset by the extra manpower available to build improvised fallout shelters quickly and to take other fast survival measures where much help could be welcomed. Natural disaster experience and research done by DCPA to date indicate a general willingness by host area residents to open their homes to evacuees in a dire emergency to care for the surplus that the community's institutions and various congregate-care facilities could not handle.

The Newspaper Supplement--Some Nuts and Bolts

The newspaper supplement is not only one of the most vital parts of the CRP risk area emergency public information plan, but poses one of the toughest production jobs for planners. This is why the following production hints and ready-made copy have been included in this guidance.

Before reading on in this section, review the guidance for television map preparation on pages 8-9 for those production hints which are equally applicable to a newspaper supplement.

Planners and/or local officials faced with the problem of putting out an EPI newspaper supplement (or a camera-ready version) based on the population relocation data they have developed would be well advised to seek the volunteer help of local newspaper executives and their staffs as soon as they are sure what they want to tell the public. The newspapermen are the experts in any community on how to tell it. Hopefully, the press officials will want to become involved in the actual development of the CRP standby newspaper supplement, and will assign someone to work with the planner. At the very least, we would hope that officials of a community's news media (broadcast as well as newspaper) should know: (a) what the CRP information plan is and why it exists, and (b) what the emergency instructions would be like an where to get them when they are needed.

In any case, following is some basic technical advice which should be helpful in preparing a layout for a CRP newspaper supplement:

1. The planner's objective is to produce an exact ready-to-print (camera-ready) facsimile of what would be printed by a newspaper during an emergency so it could be quickly and easily reproduced in a supplement. Under the phased approach (described on page 6) to preparing the emergency public information package, the EPI materials would be updated and made camera-ready at the completion of planning for each phase (Parts 1, 2, 3, and 4). Thus, there would always be an existing information package--reflecting the current state of planning--ready for rapid reproduction and distribution should a severe crisis occur.

2. In the process of preparing a camera-ready EPI package, all of the artwork (allocation maps, illustrations, etc.) should first be done to the exact size intended for use in a newspaper. A layout is then produced in which the artwork, headlines, and "text blocks" (space for the body type to be pasted in) are assembled in the exact relation to one another that they would occupy when printed in a newspaper. As the EPI package is being prepared for review, the text may either be set in actual type, or typed into manuscript copy written to conform to the space allowed in the text block (the latter is permissible because changes made by reviewers in the text could then be made conveniently and inexpensively before type is set). **Note:** The most common newspaper column is 11 picas wide, and the body type in it is 9 point (8 point body type is also very common). To typewrite copy that will be set in most 8 or 9 point Roman (regular) type in such a column, you should set the margins of your typewriter to allow approximately 29 characters (strokes) from left to right per line, regardless of whether the typewriter has pica or elite type. About 8 such typewritten lines will equal one inch of printed type in an 11 pica column. Many local newspapers vary from this norm in column width and/or body type size. They should be consulted locally before preparing copy for a newspaper supplement. The ready-to-print articles in Tab B for newspaper use are 11 pica columns set in 8 point Century Expand type (typewriter character count: about 33 per line of type). The Tab B articles may be photographically reduced or--more likely--blown up slightly by newspapers with different column and/or type sizes. Alternatively, the articles may be reset by a local newspaper to its own column width and type if time permits.

3. In Tabs F and G, you will find some suggested standard survival information and art work (from the San Antonio, Texas, CRP prototype project) which could be incorporated into a risk-area newspaper supplement or survival instruction leaflet. This material would then be in a portable form that could be taken along into host areas by evacuees. Avoid body type smaller than 8 point; 9 or 10 point is preferred for readability where space allows.

4. Use of color should be avoided in a newspaper supplement, because time would be too critical a factor to allow the extra printing setup time required. It is estimated that a black and white newspaper supplement could be produced from release of the standby camera-ready materials to delivery on the street in no more than 8 to 12 hours.

5. The size of the supplement will be determined by the reproduction equipment used. Generally, a tabloid-size format is acceptable (approximate page size of 11 x 14 inches). Normally, the number of pages should be in multiples of 4; that is, 8, 12, 16, etc. This will permit two pages to be printed simultaneously on a 22x14-inch sheet and folded into tabloid size. Some newspapers prefer to limit pages to multiples of 8, but can accommodate the 4-page folio.

6. In developing the principal evacuation map, keep in mind that the two center facing pages of the supplement are the only ones on which a physical page separation will not occur. Therefore, the main map should be printed on the center pages so it can be read more easily and retained as a single unit. From the start, the map should be the actual size to fit the publication.

7. As noted earlier, the CRP map(s) should be very simple, with only the most essential detail, and with accompanying map keys or brief text written in plain English (or other languages, if needed). Tab H contains two maps from the San Antonio project as examples of evacuation maps. Among their faults are that the type is too small, the evacuation areas are not clearly delineated, and the system of telephone prefixes used to identify evacuation areas may not be adaptable in other planning areas. Thus, the two maps are just starting points in developing maps adapted to your planning area's needs.

8. In putting together the newspaper supplement (or any other EPI materials), make sure the guidance is consistent with that in the detailed plan, and especially that maps are consistent with one another. Care should be taken, for example, that the public is not given conflicting destinations or told conflicting items or amounts to bring along.

The Economic Questions

There have been some questions about the economic aspects of Crisis Relocation Planning for which only partial answers are now available--not surprising in so complex a program which is breaking new ground. Those questions which bear on the emergency public information area include:

What would be the responsibilities, and possible liabilities, of local and State governments for losses or costs incident to relocation?

Would the Federal Government indemnify those suffering economic loss (e.g., individuals, businesses whose operations were curtailed or suspended during the relocation period, or businesses providing food or other essentials)?

Would there be a freeze on retail sales, and/or would there be a system of consumer rationing?

What would be Federal policies on providing or guaranteeing credit for individuals and businesses, during the relocation period?

DCPA guidance notes that "planning should be based on the assumptions that no one would be denied the necessities of life through inability to pay, and that the continuity of businesses and other institutions will be protected."

DCPA has also stated that it " … has proceeded on a basis of 'first things first,' namely, development and feasibility testing of planning guidance for physical problems such as relocation movement and physical provision for life-support essentials … While a crisis so severe as to result in spontaneous evacuation or directed relocation is unlikely, it is by no means impossible, and could occur before full development of U.S. crisis relocation plans and capability. Thus, an initial capability should be developed as soon as practicable, and thereafter improved by a continuing planning process … Should a need for crisis relocation arise before all planning is completed … it would be possible to deal with economic problems partly during the crisis, but primarily afterwards (assuming the crisis had been resolved by negotiation, rather than escalating to attack on the U.S.). This would obviously be less desirable than having completed planning beforehand for the economic as well as physical aspects of relocation, but the primary object of relocation planning would have been achieved, namely, removing scores of millions of people from areas of potentially high risk should the crisis escalate to attack."

Finally, DCPA notes that "the foregoing and related issues are the subject of several DCPA research projects. Also, a number of the Federal agencies concerned are commencing investigation and analysis of these issues in a CRP Subcommittee … of the Interagency Emergency Preparedness Committee. However, development of interim and then final policies and procedures is anticipated to extend over a period of several years."

A

FACT SHEET ON NUCLEAR CIVIL PROTECTION (NCP) PLANNING

Background

In 1961, when the Federal Civil Defense Program was made a responsibility of the Department of Defense, the program's basic objective was to assist local and State governments -- financially, technically, and administratively -- in protecting their residents from the dangerous radioactive fallout that would follow a nuclear attack on the United States and blanket large areas of the country.

It was not considered economically feasible at that time for government to undertake major protective programs against the other, so-called "direct" effects of nuclear explosions -- initial radiation, blast, heat, and heat-induced fires.

As a first step in establishing its National Fallout Shelter Program, the Office of Civil Defense (OCD) (redesignated in 1972 as the Defense Civil Preparedness Agency (DCPA)) instituted the National Fallout Shelter Survey in late 1961. Since then, the Survey has identified areas of existing large buildings and other facilities -- such as mines, caves, and tunnels -- that would protect occupants from fallout radiation. Such areas were licensed and marked as public fallout shelters, and many were stocked with federally procured, austere supplies of water containers, basic food rations, and medical, sanitation, and radiation-monitoring kits.

Substantial progress has been made by Federal, State, and local government toward achieving fallout protection for the Nation. More than 230,000 facilities with fallout shelter space have been identified, with a capacity to shelter about 227 million persons. There is a deficit of public shelter space in rural and suburban areas; but a great deal of lower-quality shelter exists, which could be upgraded during a crisis to provide good fallout protection.

In addition to fallout shelters, other necessary components of a nationwide civil defense system have been developed, including warning and communications networks, radiological monitoring capabilities, and State and local emergency operating centers.

As the nationwide program of defense against nuclear fallout radiation moved forward in the 1960's and early 1970's, all State governments and most local governments expanded their emergency preparedness programs to include protection of residents from natural disasters and other peacetime catastrophes, as well as from nuclear fallout.

Nuclear Blast and Fire Protection

Throughout the 1960's, as the Federal Government helped local and State governments plan the protection of their residents from nuclear fallout radiation and peacetime-disaster effects, long-term research continued on how to protect people from the blast and fire effects of nuclear attack.

From these studies, supported by DCPA and predecessor agencies, these basic conclusions were reached in the early 1970's:

(1) An attack very likely would be preceded by a period of international tension or crisis. This could constitute "strategic warning," and provide time for protective actions to be taken.

(2) If an attack should occur, the primary enemy targets probably would be U.S. missile sites, military installations, and centers of industry and population (i.e., metropolitan areas). Approximately 137 million people live in areas designated at risk from the direct effects of nuclear weapons.

(3) Blast and fire would endanger mainly people living or working near military targets and in large metropolitan areas. These two types of location may therefore be designated "high-risk" areas for planning purposes.

(4) Extensive fallout shelter exists throughout the United States, and more is being identified (mostly in new buildings) as time goes on. Therefore, attention should now be given also to protection against nuclear blast and fire.

(5) It is technically feasible to build special underground blast-and-fire shelters in high-risk areas, but the public and the Congress would be unwilling at this time to underwrite such costs.

(6) If may be feasible, however, when an international crisis threatens to result in a nuclear attack, for residents of high-risk areas to be temporarily relocated in small-town and rural areas, where nuclear weapons probably would not be targeted, provided these people could be protected against radioactive fallout and provided with food, water, medical care, and other life support.

Nuclear Civil Protection Planning

The total effort to plan for survival of the greatest number of people faced with a probable nuclear attack is called "Nuclear Civil Protection (NCP) planning." This major DCPA program is directed toward providing decision-making officials with two basic options:

(1) Protecting people essentially in-place, at or near their places of residence.

(2) The orderly relocation of people, in time of international crisis, from areas of potentially high risk from the direct effects of nuclear weapons to low-risk host areas--and their reception, care, and protection in the host areas.

Much work has already been accomplished by DCPA under the first option of protecting people in place. As already noted, the National Fallout Shelter Program has identified shelter spaces for millions of persons. Starting in 1973, this work

was expanded to include surveying for best-available shelter from nuclear blast and heat effects as well as fallout in high-risk areas. These are called "all-effects" surveys. In low-risk areas, surveys continue to concentrate on best-available fallout protection.

As an adjunct to the shelter surveys, DCPA's Community Shelter Planning (CSP) Program has produced local plans over the past 10 years to move people to shelters in more than 2,900 counties with a total population exceeding 183 million. These plans tell people where to go and what to do in case of threatened nuclear attack.

Crisis Relocation Planning--Concept and Need

The work of DCPA under the second option, known as Crisis Relocation Planning (CRP), is much more recent. The CRP concept is still being refined, mainly through various pilot projects. CRP may be defined as the evacuation of high-risk areas when a nuclear attack threatens, and the temporary relocation of the residents of those areas into small towns and rural sites, called "host areas," where nuclear blast and fire effects are not likely to occur.

The crisis relocation option includes State and local planning for:

(1) Allocation of risk-area populations to appropriate host areas.

(2) Host-area reception and care, including provision of fallout protection and preparation of standby emergency information materials for the public.

(3) Logistical support of relocated people.

(4) Risk-area operations, including initial relocation of people, security measures to keep essential industry in operation in the risk areas, and furnishing of best-available blast protection for persons who would be in the risk areas in event of attack. Workers in key industries which must operate during a crisis period would be relocated, with their families, to close-in host communities from which they could commute to work during the crisis period.

Crisis relocation planning has peacetime as well as wartime value. It can be used to protect people not only from nuclear blast and fire, but also from the effects of: (a) slowly developing natural disasters, such as hurricanes and floods, and (b) certain types of peacetime accidents, such as those resulting in the release of harmful or lethal fumes into the atmosphere.

Planned relocation would not be practical, however, as a protective measure against sudden and unpredictable events, such as tornadoes, flash floods, earthquakes, or an enemy attack that occurs without warning. The probability of attack occurring without warning is considered low; and planners believe a period of rising international tension would be likely, including such telltale events as the evacuation of enemy cities.

Relationship of Civil Preparedness to the World Situation

Soviet leaders, it has been noted, have the option to evacuate their cities or to shelter the population in place, depending upon their assessment of the situation at the time … The U.S. should have a similar option for two reasons: (1) To be able to respond in kind if the Soviet Union attempts to intimidate us in a time of crisis by evacuating the population from its cities, and (2) to reduce fatalities if an attack on our cities appears imminent.

It has also been pointed out that if there were time before an all-out attack to relocate the bulk of the U.S. population from major metropolitan areas, some 70 million lives could be saved, over and above those that could be saved by well-functioning, in-place protection.

Implicit in this statement is the role of civil defense as a supporting element of national defense, and as a deterrent to hostile actions by a potential adversary which would threaten the lives of the American people.

Where We Stand on Nuclear Civil Protection Planning

To minimize the knockout potential of Soviet military power, NCP planners have designated approximately 400 "high-risk" areas for planning purposes throughout the United States, in three categories:

Category I -- Places which contain strategic offensive military forces, sometimes called "counterforce" areas.

Category II -- Other places of high military value, such as key military bases, and command and control facilities.

Category III -- Primarily urban/industrial complexes with populations of 50,000 or more.

As solutions are devised and tested for the special problems posed by the crisis relocation option of NCP, the Defense Civil Preparedness Agency will provide guidance materials for local governments to use in developing Crisis Relocation Plans.

The following are examples of CRP progress so far, of activities underway, and of other activities planned for the near future:

- In 1973, studies were made in Richmond, Virginia, and San Antonio, Texas; and a prototype approach to Crisis Relocation Planning was developed. These studies confirmed the feasibility and value of relocating residents of high-risk areas when a nuclear attack (or peacetime disaster) threatens.

- In the summers of 1973 and 1974, more than 50 high-risk areas were specially surveyed for DCPA by Army and Navy engineers. In each place, existing buildings and other facilities were evaluated for the protection they offer against nuclear blast and fire and the effects of "probably" natural disasters. Results of these "all-risk" surveys have been furnished to the local civil preparedness officials in the surveyed areas, for their use in planning.

- In 1974, nine CRP pilot projects were started in: Springfield, Mass.; Utica/Rome, N.Y.; Dover, Del.; Macon, Ga.; Duluth, Minn.; Oklahoma City, Okla.; Colorado Springs, Colo.; Tucson, Ariz.; and Great Falls, Mont. The work in these project cities will provide the basis for operational plans not only for the areas at risk, but also for the surrounding counties that would host relocated people.

- Various possible methods of protecting relocated persons from radioactive fallout in host areas continue to be explored and evaluated. Such methods include use of public shelters surplus to local needs; upgrading the fallout protection or habitability of certain existing buildings, mines, caves, etc.; and as a last resort, arranging to build "expedient" fallout shelters.

- DCPA currently is researching a number of particularly complex subjects necessary to developing workable Crisis Relocation Plans. These include analyses of food supply systems, transportation and communication networks, reception and care arrangements in host areas, sanitation, public safety, and medical aspects of CRP.

- The extent and timing of further CRP activity by DCPA will be governed by resources available. The ultimate intent is to develop both crisis relocation and in-place protection plans for all risk areas and associated host counties.

Special Northeast Corridor Study

Problems raised by dispersing people from urban high-risk areas to rural or semirural host areas are especially acute in the Northeast urban corridor from Boston to Washington, D.C. This is partly because of the very large population of this corridor in relation to possible host areas. In addition, a large amount of interstate population movement would be necessary requiring extensive, carefully planned multistate cooperation.

According to the 1970 census, more than 60 million persons live in this area, of which about 47 million, or around 80 percent, live in areas where crisis relocation plans might be desirable. If all of these people were to be relocated to the remaining lower risk areas, there would be about four relocatees for each host resident, with the highest proportion being in New England.

Research begun in July 1975 seeks answers not only to the general questions on CRP already discussed, but also focuses more sharply on the large-scale problems of the Northeast megalopolis. Study results may also apply to such regions as the Chicago-Detroit corridor and California. Key questions being addressed include:

- How many people could physically leave cities such as New York, Boston, and Philadelphia by automobile, bus, or train over a three-day period during a crisis?

- How far would these people have to go to find temporary lodging?
- Is there a practical means of providing food and other necessities to the relocated people and their hosts?
- In the nonmetropolitan areas to which relocatees may go, is there adequate fallout shelter in event the crisis escalates to actual attack?
- In the high-risk areas, what essential facilities would need to be manned after most of the population was dispersed, and how many key personnel would be needed? What special protective facilities would they require? How many could commute from relatively nearby points?

Once the most feasible solutions to the many problems have been identified, the researchers will prepare guidance for use in relocation planning for large cities and densely populated areas, and will participate in field-testing the planning procedures in one large city of the Northeast.

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B

In Time of Emergency

Knowing Nuclear Hazards Key to Personal Survival

The nationwide U.S. civil defense system, which is being enlarged and improved constantly, is designed primarily to help Americans survive and recover from nuclear attack. Its heart is a fallout shelter system which could save the lives of millions of persons that would otherwise be lost because of radioactive fallout.

The civil defense system also includes warning and communications networks, local governments organized for emergency operations, and many other resources. If an attack should come, many lives could be saved through a combination of emergency actions taken by governments and private citizens.

The chances of surviving and recovering from a nuclear attack are much better if citizens:

1. Understand the dangers of an attack.
2. Learn the actions that should be taken in the event of an attack.
3. Are prepared to take whatever action is necessary at the time of an attack.

If an Attack Comes . . .

All nuclear explosions cause light, heat and blast. In addition, explosions on or close to the ground would create large quantities of dangerous radioactive fallout particles, most of which would fall to earth during the first 24 hours.

If the U.S. should be attacked, the people who happened to be close to a nuclear explosion probably would be killed or seriously injured by the blast, or by the heat of the explosion.

People a few miles away in the "fringe area" of the explosion would be endangered by the blast and heat, and by fires that the detonation might start. However, it is likely that most of the people in the fringe area would survive these hazards.

People outside the fringe area might start. However, it is likely that most of the people in the fringe area would survive these hazards.

People outside the fringe area would not be endangered by the blast, heat or fire. Department of Defense studies show that in any nuclear attack, tens of millions of Americans would be outside the damage areas. To them, and to people in the fringe areas who survived the blast, heat and fire, radioactive fallout would be the main danger. Protective measures against this hazard can be taken.

What Is Fallout?

When a nuclear weapon explodes near the ground, great quantities of pulverized earth and other debris are sucked up into the nuclear cloud where many of the particles become radioactive. As these particles fall back to earth, and after they reach the ground, they give off invisible gamma rays— like X-rays—which can kill or injure. These particles give off most of their radiation quickly, so the first few hours or days after an attack would be the most dangerous period. The rule is that for every 7-fold increase in time after detonation, the radiation intensity will be 1/10th as much. (Seven hours after a blast, radiation would be 1/10th as much, 49 hours after the blast, 1/100th as much as at one hour after detonation, etc.)

In dangerously-affected areas the fallout particles would look like grains of grit or sand. However, the *rays* they would give off could not be seen, tasted, smelled or felt. Special instruments would be required to detect the rays and measure their intensity. The Federal Government has distributed several million of these instruments to State and local governments.

Fallout Would Be Widespread

The distribution of fallout particles after a nuclear attack would depend on what part of the country had been attacked, and the number of weapons used, as well as wind currents, weather conditions and other factors. However, there is no way of predicting in advance what areas of the country would be affected, or how soon the particles would fall back to earth at a particular location.

Some communities might get a heavy accumulation of fallout, while others might get little or none. No area in the U.S. could be sure of not getting fallout, and it is probable that some particles would be deposited on most of the country.

Areas close to a nuclear explosion might receive fallout within 15 to 30 minutes. On the other hand, it might take 5 to 10 hours or more for the particles to drift down on a community 100 or 200 miles away.

Generally, the first 24 hours after fallout began to settle would be the most dangerous period to a community's residents. The heavier particles falling during that time would still be highly radioactive and give off strong rays. Lighter particles falling later would have lost much of their radiation high in the atmosphere.

Fallout Causes Radiation Sickness

The invisible gamma rays given off by fallout particles can produce radiation sickness, which is caused by physical and chemical changes in the cells of the body. If a person receives a large dose of fallout radiation, he will die. But if he receives only a small or medium dose, his body will repair itself and he will get well.

The same dose received over a short period of time is more damaging than over a longer period. Usually, the effects of a given dose of radiation are more severe in very young and very old persons, and those not in good health.

No special clothing can protect people against gamma radiation, and no special drugs or chemicals can prevent large doses of radiation from causing damage to the cells of the body. However, antibiotics and other medicines are helpful in treating infections that sometimes follow excessive exposure to radiation.

Almost all of the radiation that people would absorb from fallout particles would come from particles *outside* their own bodies. Only simple precautions would be necessary to avoid swallowing the particles, and it would be practically impossible to inhale them.

People exposed to fallout radiation do *not* become radioactive and thereby dangerous to other people. Radiation sickness is not contagious or infectious, and one person cannot "catch it" from another person.

Protection Is Possible

People can protect themselves against fallout radiation, and have a good chance of surviving, by staying inside a fallout shelter. In most cases, the fallout radiation level outside the shelter would decrease rapidly enough to permit people to leave the shelter within a few days.

Even in communities that received relatively heavy accumulations of fallout particles, people soon might be able to leave shelter for a few minutes or a few hours at a time to perform emergency tasks. In most places, it is unlikely that full-time shelter occupancy would be required for more than a week or two.

The information in this story was furnished by the Defense Civil Preparedness Agency to help people prepare for a nuclear attack and learn what actions to take in case an attack should occur. Local government authorities are responsible for supplying the public with more detailed survival instructions for this area. This information was drawn from the DCPA publication "In Time of Emergency" (H-14), which is available without charge at local civil defense offices.

In Time of Emergency

If Warning Sounds, Here's What to Do

Warning of an enemy attack on the United States probably would be preceded by a period of international tension or crisis which would help alert all citizens to the *possibility* of attack. The actual attack warning, however, would be given to the public by outdoor warning devices, supplemented by radio or television.

If an attack actually occurs, it is almost certain that incoming enemy planes and missiles would be detected by our networks of warning stations in time for people to get into shelters or at least take cover. This warning time might be as little as 5-15 minutes in some locations, and as much as an hour or more in others.

Outdoor Warning Systems

Many U.S. cities and towns have outdoor warning systems, using sirens, whistles, horns or bells. Although they have been installed mainly to warn citizens of enemy attack, some local governments also use them in connection with natural disasters and other peacetime catastrophes.

THE ATTACK WARNING SIGNAL will be sounded only in case of enemy attack. The signal itself is a 3 to 5-minute *rising and falling* sound on the sirens, on whistles, horns or other devices, repeated as necessary. The Attack Warning Signal means that an actual enemy attack against the United States has been detected, and that people should take protective action immediately. This signal has no other meaning, and can be used for no other purpose.

ATTACK WARNING SIGNAL

In some communities, the local government uses an alert signal to get the attention of citizens in a time of threatened or impending natural disaster, or some other peacetime emergency. This attention or alert signal is a 3 to 5-minute *steady blast* on sirens, whistles, horns or other devices. In most places, it means that the local government will broadcast important information and official instructions on radio or television concerning a peacetime disaster.

When the Attack Warning Signal Sounds

The Attack Warning Signal means—unless other instructions have been issued by local government—that people should go immediately to a public fallout shelter marked with a yellow-and-black sign or to a home fallout shelter. Once in the fallout shelter, the radio should be tuned to any local station that is broadcasting to get official information and instructions.

If there is no public or private shelter available, fallout protection should be improvised. *As a last resort, take cover anywhere possible.*

If a warning signal sounds, do *not* use the telephone to obtain further information and advice about the emergency. Radio and television stations will be broadcasting all the official information available. The telephone lines will be needed for official calls.

If There Is a Nuclear Flash . . .

It is possible but unlikely that the first warning of an enemy attack would be the flash of a nuclear explosion in the sky some distance away. Or there might be a flash after warning had been given, possibly while people were going to shelter.

TAKE COVER INSTANTLY. If there should be a nuclear flash, take cover *instantly* in the best place available. By getting inside or under something within a few *seconds*, serious burns or injuries from the heat or blast waves of the nuclear explosion might be avoided. If the explosion were some distance away, a person might have 5 to 10 seconds before being injured by the heat, and perhaps 30 to 60 seconds before the blast wave arrived. *Never look at the flash of an explosion or the nuclear fireball*—it could cause permanent blindness.

Any kind of a building—a storm cellar or fruit cellar, a subway station or tunnel, a ditch or culvert alongside the road, a highway underpass, a storm sewer, a cave or outcropping of rock, a pile of heavy materials, or a trench or other excavation—would provide some protection. However, if no cover is available, simply lie down on the ground and curl up covering the head with the arms and hands. The important thing is to avoid being burned by the heat, thrown about by the blast, or struck by flying objects. Then go to a fallout shelter for protection against the radioactive fallout, which would arrive later.

The information in this story was furnished by the Defense Civil Preparedness Agency to help people prepare for a nuclear attack and learn what actions to take in case an attack should occur. Local government authorities are responsible for supplying the public with more detailed survival instructions for this area. This information was drawn from the DCPA publication "In Time of Emergency" (H-14), which is available without charge at local civil defense offices.

In Time of Emergency

Many Could Live in Public Shelters

Most communities now have public fallout shelters that would protect many of their residents against fallout radiation. Where there are still not enough public shelters to accommodate all citizens, efforts are being made to provide more.

Most of the existing public shelters are located in larger buildings and are marked with a standard yellow- and-black fallout shelter sign. Other public shelters are in smaller buildings, subways, tunnels, mines and other facilities. These also are marked with shelter signs, or would be marked in a time of emergency.

Individual preparations for a nuclear emergency should include finding out the locations of those fallout shelters designated by local government for public use. If no designations have yet been made, learn the locations of public shelters that are nearest to home, work, school, or any other places where much time is spent.

This advice applies to all members of the family. Children especially should be given clear instructions on where to find a fallout shelter at all times of the day, and what other actions they should take in case an attack should occur.

A fallout shelter does not need to be a special type of building or an underground bunker. It can be *any enclosed space*, provided the walls and roof are thick or heavy enough to block many of the rays given off by the fallout particles and thus keep dangerous amounts of radiation from reaching the people inside the shelter.

In addition to protecting people from radiation, most fallout shelters also would provide some limited protection against the blast and heat effects of nuclear explosions that were not close by.

What to Take to a Shelter

Some public fallout shelters are stocked with emergency supplies which augment whatever supply of food and liquids are found in large buildings. These shelter supplies include water, emergency food rations, sanitation items, basic medical supplies, and instruments to measure the radiation given off by fallout particles.

People using a stocked public shelter should supplement these emergency supplies with additional food and liquids. Those with special dietary or health problems should take special medicines or foods, such as insulin, heart tablets, dietetic food or baby food. Other useful items not furnished in public shelters include a blanket for each family member, a battery-powered radio, a flashlight, and extra batteries.

If the public shelter to be used does *not* contain emergency supplies, it is even more important to take the above items plus as many potable liquids (water, fruit and vegetable juices, etc.) and ready-to-eat foods as can be carried to the shelter.

Living in a Public Shelter

The people gathered together in a public fallout shelter for a few days, or possibly for a week or two, probably would find life difficult and unpleasant, but still bearable.

In the shelter, water and food may be scarce, and the available supplies of these necessities may have to be "managed"; that is, taken care of, kept clean, and rationed to each person. Sanitation also may have to be managed and controlled, perhaps by setting up emergency toilets and rules to insure that they are used properly. All shelter occupants would have to observe fire prevention precautions, and know what to do in case a fire occurred.

Occupants of public fallout shelters would need to rely mainly on instructions received from outside sources (probably by radio) to know when radiation levels had gone down enough to come out of the shelter for short periods. In shelters with radiation detection instruments, readings on radiation levels would supplement official instructions. As time passed, people could come out of shelters for longer and longer periods to do essential jobs.

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In Time of Emergency

Fallout Shelter Built Into Home Seen As Practical Way to Survive Attack

The public fallout shelter system which has been developed in the United States would protect tens of millions of Americans from fallout resulting from a nuclear attack. However, few public shelters exist in locations such as suburban and rural areas that lack large, heavy structures. In places with inadequate or nonexistent public shelters, a home fallout shelter could be a life saver.

The basements of some homes are usable as family fallout shelters as they now stand without any major changes, especially if the house has two or more stories, and its basement is below ground level.

Most home basements, however, would need some improvements in order to adequately shield their occupants from the radiation given off by fallout particles. Usually, householders can make these improvements themselves, with moderate effort and at low cost.

Shielding Material Is Required

In setting up any home fallout shelter, the basic aim is to place enough "shielding material" between the people in the shelter and the fallout particles outside the home.

Shielding material is any substance that would absorb and deflect the invisible rays given off by fallout particles outside the house, and thus reduce the amount of radiation reaching the occupants of the shelter. The thicker or denser the shielding material is, the more it would protect the shelter occupants.

Some radiation protection is provided by the existing, standard walls and ceiling of a basement. But if they are not thick or dense enough, other shielding material has to be added.

Concrete, bricks, earth and sand are some of the materials that are dense or heavy enough to provide fallout protection. For comparative purposes, 4 inches of concrete would provide the same shielding density as:

- 5 to 6 inches of bricks
- 6 inches of sand or gravel
- 7 inches of earth
- 8 inches of hollow concrete blocks (6 inches if filled with sand)
- 10 inches of water
- 14 inches of books or magazines
- 18 inches of wood

Some of the materials listed above may be handled more easily if they are packed into bags, cartons, boxes or other containers already placed where the additional shielding is desired.

A home shelter can be either a permanent basement shelter, a preplanned basement shelter, or a permanent outside shelter. Plans may be obtained without charge by writing to Civil Defense, Army Publications Center, 2800 Eastern Blvd., Baltimore, Md. 21220. In writing for either type of basement shelter, mention whether Plan A, B, C, D, E, or F is wanted. Permanent outside shelters are either of the underground type (DCPA publication H-12-1), or the above-ground type (H-12-2).

The latter is intended primarily for areas where underground construction is difficult, such as where a high water table exists.

Permanent Basement Shelters

The following 3 shelters are probably the best type to build in homes with a full basement or one corner below ground level. Persons with basic carpentry or masonry skills could probably do the work themselves. Shelters of this type should always be built in the "best" corner of a home basement—the corner which is most below ground level.

CEILING MODIFICATION (Plan A) calls for increasing the overhead shielding against "downward" radiation by screwing plywood sheets securely to the bottom of the ceiling joists, then filling the spaces between the joists with bricks or concrete blocks. An extra ceiling beam and a screwjack column may be needed to support the extra weight.

If 12 inches or more of the basement wall is above ground level, this plan should *not* be used unless two interior partitions are added to form a shelter area and protect the shelter occupants against radiation coming from the side.

ALTERNATE CEILING MODIFICATION (Plan B) is similar to Plan A, except that new extra joists are fitted into part of the basement ceiling (over that section of the basement which will be used as a shelter). The new joists will help support the added weight of the overhead shielding material, and the extra ceiling beam and screwjack column will not be needed.

CONCRETE BLOCK OR BRICK SHELTER (Plan C) is a plan to build, out of concrete blocks or bricks, a separate 5 x 11-foot shelter in the "best corner" of a basement. It requires construction of only two walls and a ceiling for the shelter, since the regular basement walls will serve as the other two walls of the shelter. Built low, this can serve as a "sit-down" shelter, or by making the walls higher, a shelter can accommodate people standing erect. The shelter ceiling, however, should not be higher than the outside ground level.

If a home has a basement but a permanent-type basement shelter is not desired, the next best thing would be to arrange to assemble a "pre-planned" home shelter. This simply means gathering together, in advance, the shielding material needed to make a basement (or one part of it) more resistant to fallout radiation. This material could be stored in or around the home, ready for use whenever it is decided to set up a shelter.

PREPLANNED SNACK BAR SHELTER (Plan D) is a snack bar built of bricks or concrete blocks, set in mortar, in the basement corner that is most below ground level. Over the snack bar build a strong, hollow "false ceiling" that is hinged to the wall.

In a time of emergency, the false ceiling is lowered so that one end rests on the snack bar, and the hollow sections of it are filled with bricks or concrete blocks (which should be stored nearby) to provide overhead shielding.

PREPLANNED TILT-UP STORAGE UNIT (Plan E) involves construction of a simple storage unit out of lumber. The unit is like a free-standing bookshelf or storage bin, 6 feet high, 8 inches deep, and either 1½ or 3 feet wide. At the top, it is hinged to the basement wall.

In peacetime, the unit could be used to store books, canned goods or other things. In event of attack warning, the storage unit would be tilted so that the bottom would be resting on an unmortared wall of bricks or concrete blocks that have been stored nearby. Other bricks or blocks would then be placed in the compartments of the storage unit, to provide an overhead shield against fallout radiation.

PREPLANNED LEAN-TO SHELTER (Plan F) provides protection from radioactive fallout in the below grade basement of an existing house. Its advantages are low cost, simplicity of construction, general availability of materials, and the fact that it may be easily disassembled.

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Improvised Fallout Protection Could Prove Important Life Saver in Nuclear Attack

If a nuclear attack on the United States appeared imminent, people who had no public fallout shelter available and had not made advance fallout preparations in their homes could still improvise fallout protection.

An improvised shelter probably would not give as much protection as a permanent public or home shelter, but any protection is better than none, and might prove to be a life saver.

The best place to improvise a shelter would be a basement or storm cellar, if one existed.

To improvise a shelter, radiation shielding materials would be needed such as concrete blocks, bricks, sand, etc. Other things that could also be used as shielding material, or to support shielding material, include:

- House doors that have been taken off their hinges (especially heavy outside doors).
- Dressers and chests. (Fill the drawers with sand or earth *after* they are placed in position, so they won't be too heavy to carry.)
- Trunks, boxes and cartons. (Fill them with sand or earth after they are placed in position.)
- Tables and bookcases.
- Large appliances, such as washers and dryers.
- Books, magazines, and stacks of firewood or lumber.
- Flagstones from outside walks and patios.

Improvising a Basement Shelter

Here are two ways of improvising fallout protection in the basement of a home:

USING A TABLE OR WORKBENCH. Set up a large, sturdy table or workbench in the basement corner that is most below ground level. On the table, pile as much shielding material as it will hold without collapsing. Around the table, place as much shielding material as possible, up as high as the table top. When family members are "inside the shelter"— that is, under the table—block the opening with other shielding material.

USING FURNITURE AND HOUSE DOORS. If there is no large table or workbench available, or if more shelter space is needed, place furniture or large appliances in the corner of the basement to serve as the "walls" of the shelter.

As a "ceiling," use doors from the house that have been taken off their hinges. On top of the doors, pile as much shielding material as they will support. Stack other shielding material around the "walls" of the shelter. When everyone is inside the shelter space, block the opening with shielding material.

A Storm Cellar Can Be a Shelter

A below-ground storm cellar can be used as an improvised fallout shelter, but additional shielding material may be needed to provide adequate protection from fallout radiation.

As a "ceiling," use doors from the house that have been taken off their hinges. On top of the doors, pile as much shielding material as they will support. Stack other shielding material around the "walls" of the shelter. When everyone is inside the shelter space, block the opening with shielding material.

A Storm Cellar Can Be a Shelter

A below-ground storm cellar can be used as an improvised fallout shelter, but additional shielding material may be needed to provide adequate protection from fallout radiation.

If the existing roof of the storm cellar is made of wood or other light material, it should be covered with one foot of earth or an equivalent thickness of other shielding material. More posts or braces may be needed to support the extra weight.

After the roof has been shielded, and all occupants are in the shelter, better protection can be provided by blocking the entrance way (inside) with 8-inch concrete blocks or an equivalent thickness of sandbags, bricks, earth or other shielding material. A few inches should be left open at the top for air. After fallout particles have stopped coming down, the outside door of the storm cellar may be left open to provide better ventilation.

If shielding material is not available for the entrance way, shelter occupants should stay as far away from the entrance as possible. They also should raise the outside door of the storm cellar now and then to knock off any fallout particles that may have collected on it.

Using the Crawl Space Under a House

Some homes without basements have "crawl space" between the first floor and the ground underneath the house. If such a house is set on foundation walls, rather than on pillars, fallout protection may be improvised in this space.

Access to the crawl space should be created through the floor or outside foundation wall, perhaps by building a trapdoor or other entry before an emergency occurs. As the location for the shelter, select a crawl space area that is under the center of the house, as far away from the outside walls as possible.

Around the selected shelter area, place shielding material—preferably bricks or blocks, or containers filled with sand or earth—from the ground level up to the first floor of the house, so that the shielding material forms the "walls" of the shelter area. On the floor above, place other shielding material to form a "roof" for the shelter area.

If time permits, dig out more earth and make the shelter area deeper, to allow for standing erect or at least sitting up.

Improvising an Outside Shelter

If a home has no basement, no storm cellar and no protected crawl space, it is possible to improvise fallout protection outside. Following are two ways this may be done.

TRENCH SHELTER. Dig an L-shaped trench, about 4 feet deep and 3 feet wide. One side of the L, which will be the shelter area, should be long enough to accommodate all family members. The other side of the L can be shorter, since its purpose is to serve as an entrance way and to reduce the amount of radiation getting into the shelter area.

Cover the entire trench with lumber (or with house doors that have been taken off their hinges), except for about 2 feet on the short side of the L, to provide access and ventilation. On top of the lumber or doors, pile earth 1 to 2 feet high, or cover them with other shielding material.

If necessary, support or "shore up" the walls of the trench, as well as the lumber or doors, so they will not collapse.

LEAN-TO SHELTER. Dig a shallow ditch, 6 inches deep and 6 inches wide, parallel to and 4 feet from the outside wall of the house.

Remove the heaviest doors from the house. Place the bottoms of the doors in the ditch (so they won't slip), and lean the doors against the wall of the house.

On the doors, pile 12 to 18 inches of earth or sand. Stack or pile other shielding material at the sides of the doors, and also on the other side of the house wall (to protect the shelter occupants against radiation coming from that direction).

If possible, make the shelter area deeper by digging out more earth inside it. Also dig some other shallow ditches, to allow rain water to drain away.

Improvising Shelter on the Ground Floor

If a home has no basement or storm cellar (and no crawl space that is surrounded by foundation walls up to the first floor), limited fallout protection may be improvised in a shelter on the first or ground floor by following the same technique described under the category of "Using Furniture and House Doors." The best place to set up this shelter is a hall, room or large clothes closet on the ground floor of a house, away from outside walls and windows. However, this ground-floor shelter probably would not give nearly as much fallout protection as the other types of improvised shelters described in this article.

Boats as Improvised Shelters

A boat with an enclosed cabin could be used as a fallout shelter.

In addition to emergency supplies such as food, drinking water and a battery-powered radio, items needed aboard include a broom, bucket, or pump-and-hose to sweep off or flush off fallout particles that might collect on the boat.

The boat should be anchored or cruised slowly at least 200 feet offshore, where the water is at least 5 feet deep. This distance from shore would protect occupants from radioactive fallout particles that had fallen on the nearby land. A 5-foot depth would absorb the radiation from particles falling into the water and settling on the bottom.

If particles drift down on the boat, stay inside the cabin most of the time. Go outside now and then, and sweep or flush off any particles that have collected on the boat.

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Provisions for Home Fallout Shelter Called Vital Part of Home Preparedness

Supplies and equipment stock piled in home fallout shelters, or readily at hand to take to home shelters, would be vitally necessary for shelter occupants to be self- sufficient in event of a nuclear attack. Persons in home shelters would have to be more on their own than those in public shelters, where a variety of supplies, equipment and skills would probably be available.

During the period of up to 2 weeks after an attack in which people would have to stay in fallout shelters to avoid harmful levels of radiation, they could not do without water, food, sanitation supplies, and any special medicines or foods required by family members (such as insulin, heart tablets, dietetic food and baby food). In addition to the absolute necessities, there are other items that could save lives or at least would add a degree of comfort.

This article tells what major supplies and equipment, both essential and desirable, that people in a home fallout shelter would need.

Complete List of Supplies

WATER. This is even more important than food. Enough water should be available to give each person at least 1 quart per day for 14 days. Store it in plastic containers, or in bottles or cans. All should be tightly closed. Part of the water supply might be "trapped" water in the pipes of a home plumbing system, and part of it might be in the form of bottled or canned beverages, fruit or vegetable juices, or milk. A water-purifying agent (either water-purifying tablets, or 2 percent tincture of iodine, or a liquid chlorine household bleach containing hypochlorite as its only active ingredient) should also be stored. This is in case it is necessary to purify any cloudy or "suspicious" water that may contain bacteria.

FOOD. Enough food should be kept on hand to feed all shelter occupants for 14 days, including special foods needed by infants, elderly persons, and those on limited diets. Most people in shelter can get along on about half as much food as usual. If possible, store canned or sealed-package foods, preferably those not requiring refrigeration or cooking. In normal times, these should be replaced periodically.

In this article is a table published by the Department of Agriculture showing the suggested replacement periods, in months, for some of the types of food suitable to store for emergency use.

SANITATION SUPPLIES. Since it may not be possible to use regular bathroom facilities during a period of emergency, keep these sanitation supplies on hand: (1) A metal container with a tight-fitting lid, to use as an emergency toilet; (2) one or two large garbage cans with covers (for human wastes and garbage); (3) plastic bags to line the toilet container; (4) disinfectant such as creosol or chlorine bleach; (5) toilet paper; (6) soap, wash cloths and towels; (7) a pail or basin, and (8) sanitary napkins.

MEDICINES AND FIRST AID SUPPLIES. These should include any medicines being regularly taken, or likely to be needed, by family members. First aid supplies should include all those found in a good first aid kit (bandages, antiseptics, etc.), plus items normally kept in a well-stocked home medicine chest (aspirin, thermometer, baking soda, petroleum jelly, etc.). A good first aid handbook is also recommended.

INFANT SUPPLIES. Families with babies should keep on hand a two-week stock of infant supplies such as canned milk or baby formula, disposable diapers, bottles and nipples, rubber sheeting, blankets and baby clothing. Because water for washing might be limited, baby clothing and bedding should be stored in larger-than-normal quantities.

COOKING AND EATING UTENSILS. Emergency supplies should include pots, pans, knives, forks, spoons, plates, cups, napkins, paper towels, measuring cup, bottle opener, can opener, and pocket knife. If possible, disposable items should be stored. A heat source also might be helpful, such as an electric hot plate (for use if power is available), or a camp stove or canned-heat stove (in case power is shut off). However, if a stove is used indoors, adequate ventilation is needed.

CLOTHING. Several changes of clean clothing, especially undergarments and socks or stockings, should be ready for shelter use, in case water for washing should be scarce.

BEDDING. Blankets are the most important items of bedding that would be needed in a shelter, but occupants probably would be more comfortable if they also had available pillows, sheets, and air mattresses or sleeping bags.

FIRE FIGHTING EQUIPMENT. Simple fire fighting tools, and knowledge of how to use them, could be very useful. A hand-pumped fire extinguisher of the inexpensive, 5-gallon, water type is preferred. Carbon tetrachloride and other vaporizing-liquid type extinguishers are not recommended for use in small enclosed spaces, because of the danger of fumes. Other useful fire equipment for home use include buckets filled with sand, a ladder, and a garden hose.

GENERAL EQUIPMENT AND TOOLS. The essential items in this category are a battery-powered radio and a flashlight or lantern with spare batteries. The radio would provide a link with the outside world, and a means to receive information and instructions, especially for advice on when to leave shelter. Other useful items: A shovel, broom, axe, crowbar, kerosene lantern, short rubber hose for siphoning, coil of half-inch rope at least 25 feet long, coil of wire, hammer, pliers, screwdriver, wrench, nails and screws.

MISCELLANEOUS ITEMS. In addition to such practical items as matches, candles, and civil defense instructions, some personal convenience items could be brought into the home shelter if space permits. These might include books and magazines, writing materials, a clock and calendar, playing cards and hobby materials, a sewing kit, and toiletries such as toothbrushes, cosmetics, and shaving supplies.

Replacement Periods for Foods

	Months
MILK:	
Evaporated	6
Nonfat dry or whole dry milk, in metal container	6
CANNED MEAT, POULTRY, FISH:	
Meat, poultry	18
Fish	12
Mixtures of meats, vegetables, cereal products	18
Condensed meat-and-vegetable soups	8
FRUITS AND VEGETABLES:	
Berries and sour cherries, canned	6
Citrus fruit juices, canned	6
Other fruits and fruit juices, canned	18
Dried fruit, in metal container	6
Tomatoes, sauerkraut, canned	6
Other vegetables, canned (including dry beans and dry peas)	18
CEREALS, BAKED GOODS	**Months**
Ready-to-eat cereals:	
In original paper package	1
In metal container	12
Uncooked Cereal (quick ing or instant):	
In metal container	24
In original paper package	12
HYDROGENATED (or antioxidant treated) fats, vegetable oil	12
SUGAR, SWEETS, NUTS:	
Sugar – will keep indefinitely	
Hard candy, gum	18
Nuts, canned	12
Instant puddings	12
MISCELLANEOUS:	
Coffee, tea, or cocoa (instant)	18
Dry cream product (instant)	12
Bouillon products	12
Flavored beverage powders	24
Salt – will keep indefinitely	
Flavoring extracts (e.g., pepper)	24
Soda, baking powder	12

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In Time of Emergency

People in Shelter Would Be On Own, But Could Meet Challenge

Persons in a home fallout shelter after a nuclear attack would be largely on their own. Unlike public shelter occupants, those in home shelters would have to take care of themselves, and subsist on the supplies they themselves had previously stocked.

It is likely that major problems would be managing water and food supplies, sanitation, fire prevention (and possibly fire fighting), deciding when to leave shelter, and perhaps taking care of someone who was injured or sick.

Care and Use of Water Supplies

The average person in a shelter would need at least 1 quart of water or liquids per day to drink, but more would be useful to allow for washing, etc. Therefore, a rationing plan might be required in home shelter to make available liquids last for 14 days. In communities which continued to have drinkable water available, families could relax their rationing plan.

In addition to water stored in containers, there is usually other water available in most homes that is drinkable, such as water (20 to 60 gallons) in the hot water tank, in the *flush tanks* (not the bowls) of home toilets, and in the pipes of a home plumbing system.

In a time of nuclear attack, local authorities may instruct householders to *turn off* the main water valves in their homes to avoid having water drain away in case of a break and loss of pressure in the water mains. With the main valve closed, all the pipes in the house would still be full of water. To use this water, turn on the faucet that is located at the *highest* point in the house to let air into the system, and then draw water, as needed, from the faucet that is located at the lowest point in the house.

In a home shelter, occupants should drink first the water they know is uncontaminated, such as that mentioned above. Of course, if local authorities announce the regular water is drinkable, it should be used.

How to Purify Water

If necessary, "suspicious" water, such as cloudy water from regular faucets or perhaps some muddy water from a nearby stream or pond, can be used after it has been purified. This is how to purify it:

1. Strain the water through a paper towel or several thicknesses of clean cloth to remove dirt and fallout particles, if any. Or else let the water "settle" in a container for 24 hours, by which time any solid particles would have sunk to the bottom. A handful of clay soil in each gallon of water would help this settling process.

2. After the solid particles have been removed, boil the water if possible for 3 to 5 minutes, or add a water-purifying agent to it. This could be either: (a) water-purifying tablets, available at drug stores, or (b) 2 percent tincture of iodine, or (c) liquid chlorine household bleach, provided the label says that it contains hypochlorite as its *only* active ingredient. For each gallon of water, use 4 water-purifying tablets, or 12 drops of tincture of iodine, or 8 drops of liquid chlorine bleach. If the water is cloudy, these amounts should be doubled.

There would not be much danger of drinking radioactive particles in water, as they would sink quickly to the bottom of the container or stream. Very few would dissolve in the water. Although open reservoirs might contain some radioactive iodine in the first few days after an attack, this danger is considered minor except to very young children.

Care and Use of Food Supplies

Food also should be rationed carefully in a home shelter, to make it last for at least a 2-week period of shelter occupancy. Usually, half the normal intake would be adequate, except for growing children or pregnant women.

In a shelter, it is especially important to be sanitary in the storing, handling and eating of food to avoid digestive upsets or other more serious illness, and to avoid attracting vermin. Be sure to keep all food in covered containers, keep cooking and eating utensils clean, and keep all garbage in a closed container, or dispose of it outside the home when it is safe to go outside. If possible, bury it. Avoid letting garbage or trash accumulate inside the shelter, both for fire and sanitation reasons.

Emergency Toilet Facilities

In many home shelters, people would have to use emergency toilets until it was safe to leave shelter for brief periods of time.

An emergency toilet, consisting of a watertight container with a snug-fitting cover, would be necessary. It could be a garbage container, or a pail or bucket. If the container is small, a larger container, also with a cover, should be available in which to empty the contents for later disposal. If possible, both containers should be lined with plastic bags.

This emergency toilet could be fitted with some kind of seat, especially for children or elderly persons. The seat from a regular toilet could be detached and used or a seat might be improvised from a wooden chair by cutting a hole in it and placing the container underneath. For privacy, the toilet could be screened from view.

Every time someone uses the toilet, he should pour or sprinkle into it a small amount of regular household disinfectant, such as creosol or chlorine bleach, to keep down odors and germs. After each use, the lid should be put back on.

When the toilet container needs to be emptied, and outside radiation levels permit, the contents should be buried outside in a hole 1 or 2 feet deep. This would prevent the spread of disease by rats and insects. If the regular toilets inside the home, or the sewer lines, are not usable for any reason, an outside toilet should be built when it is safe to do so.

If anyone has been outside and fallout particles have collected on his shoes or clothing, he should be brushed off before he enters the shelter area again.

When to Leave Shelter

Shelter occupants should not come out until they are told by authorities that it is safe to do so. Special instruments are needed to detect fallout radiation and to measure its intensity. Unless the shelter contains these instruments, occupants will have to depend on local government to tell them when to leave shelter. This information probably would be given on the radio, which is one reason why a battery-powered radio should be available in the shelter area.

Persons who come out of shelter too soon, while the fallout particles outside are still highly radioactive, might receive enough radiation to sicken or even kill them.

Fallout particles can be seen, but the *rays* they give off cannot be seen. If unusual quantities of gritty particles can be seen outside on window ledges, sidewalks, car, etc., after an attack, assume that they are fallout particles, and therefore stay inside shelter until told it is safe to come out.

The information in this story was furnished by the Defense Civil Preparedness Agency to prepare people for a nuclear attack and learn what actions to take in case an attack should occur. Local government authorities are responsible for supplying the public with more detailed survival instructions for this area. The information was drawn from the DCPA publication "In Time of Emergency" (H-14), which is available without charge at local civil defense offices.

Usual Fire Precautions Vital in Nuclear Attack

Fire, the great help and hazard to mankind, would prove so again during and after a nuclear attack.

While a nuclear attack might start many more fires, and make it less likely that regular firemen would be available to fight home fires, the same techniques of fire prevention and firefighting would be as useful during a nuclear emergency as at any other time.

Normal fire prevention rules would be of special importance in a nuclear emergency. They include familiar commonsense precautions such as not allowing trash to accumulate, especially near heat sources; exercising extreme caution in the use of flammable fluids such as gasoline and naphtha, including storage of such fluids outside when possible; care in the use of electricity; repairing of faulty wiring and avoiding of overloaded circuits, and repair of faulty heating systems.

Special Fire Precautions

These *special* fire precautions should also be taken in a time of nuclear emergency, especially by those using a home shelter:

1. Keep the intense heat rays of nuclear explosions from entering your house by closing doors, windows, and venetian blinds. If windows are not fitted with venetian blinds, cover the inside or outside of the windows with aluminum foil, or coat the glass with whitewash, household cleaning powder, or even mud.

2. Unless local authorities advise otherwise, fill buckets, bathtubs and other containers with water for use in emergency fire fighting.

3. If you have taken refuge in a home fallout shelter, stay there unless you hear an explosion that breaks windows. If you do, check to make sure nothing in your home is burning, and there are no other fires near your home that might endanger you.

If a fire does occur, fight it promptly. A home might be saved by knowing how to fight fires, and by having on hand some basic firefighting tools. These should include a garden hose (preferably already connected), a ladder, buckets filled with sand, containers filled with water, and a fire extinguisher. Keep in mind that vaporizing- liquid types of fire extinguishers can produce dangerous fumes when used in small enclosed spaces.

Three Ways to Put Out Fire

There are three basic ways to put out a fire:

1. Take away its fuel.
2. Take away its air (smother it).
3. Cool it with water or fire- extinguisher chemicals.

Ordinary fires should be fought by:

- Getting the burning material out of the house.
- Putting out the fire with water, sand, earth or fire-extinguisher chemicals.
- Smothering the fire with a rug or blanket, preferably wet.

Special types of fires require special methods:

- If it is an *electrical fire*, be sure to shut off the electricity first. Then put out the flames with water or anything else available. If it is impossible to shut off the electricity, don't use water on an electrical fire due to danger of electrocution.
- If it is an *oil or grease fire*, shut off the supply of whatever is burning. Then smother the flames with sand, earth, rugs, or other heavy materials. Don't use water.
- If it is a *gas fire*, shut off the gas supply. Then use water, sand or earth to put out whatever is burning.

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First Aid, Self Help Seen Essential to Meet U.S. Post-Nuclear Attack Medical Needs

A large-scale nuclear attack on the United States would cause great numbers of casualties, and there would be fewer doctors, nurses and hospitals available to care for them. Even in areas where no nuclear weapons exploded, radioactive fallout could prevent doctors and nurses from reaching injured or sick persons for a considerable period of time.

People would have to help each other during the emergency. Those in a stocked public fallout shelter would have available the basic medical kit stored there, and perhaps one or more shelter occupants might be a doctor, nurse, or someone trained in first-aid. But persons in a home shelter would have only medical supplies available at home, and would have to depend on their own knowledge of first aid and emergency medical care.

Both adults and teenagers can acquire these valuable skills by taking free courses that are offered in many communities, such as a Red Cross First Aid course.

First of 2 Parts

The information given in this and the second article of this series is no substitute for one of these courses. However, it may save lives during a nuclear emergency by helping untrained persons take care of the sick and injured when professional medical assistance may not be immediately available. The second article will discuss specifically treatments for shock, broken bones, burns and radiation sickness.

General Rules for Medical Emergencies

1. First of all, *do no* harm. Well-meaning, but untrained, persons often worsen the injury or illness in their attempts to help. Get competent medical assistance, if possible. Do not assume responsibility for a patient if help is available from a doctor, nurse, or experienced first-aid worker. But if no one better qualified is available, untrained persons must do the job.

2. *Look for stoppage of breathing, and for serious bleeding.* These are the two most lifethreatening conditions that anyone can do something about. They demand *immediate* treatment.

3. *Prevent shock, or treat it.* Shock, a serious condition of acute circulatory failure, usually accompanies a severe or painful injury, a serious loss of blood, or a severe emotional upset. If shock is anticipated, prompt action can prevent it or lessen its severity. This may save the patient's life.

4. *Don't move the patient immediately.* Unless there is real danger of the patient receiving further injury where he is, he should not be moved until breathing is restored, bleeding is stopped, and suspected broken bones are splinted.

5. *Keep calm, and reassure the patient.* Keep him lying down and comfortably warm, but do not apply heat to his body or make him sweat.

6. *Never attempt to give liquids to an unconscious person.* If he is not able to swallow, he may choke to death or drown. Also, don't give him any liquids to drink if he has an abdominal injury.

If Breathing Stops...

Quick action is required to restore breathing to avoid death. The best and simplest way of getting air into the victim's lungs is to use mouth-to-mouth artificial respiration. Here is how to do it:

1. Place the patient on his back. Loosen his collar.

2. Open his mouth and remove any food or foreign matter. If he has false teeth or removable dental bridges, take them out.

3. Tilt the patient's head back so that his chin points upward. Lift his lower jaw from beneath and behind so that it juts out. This will move his tongue away from the back of his throat, so it does not block the air passage to his lungs. Placing a pillow or something else under his shoulders will help get his head into the right position. Some patients will start breathing as soon as these steps are taken, and no further help is necessary.

4. The person administering artificial respiration should first open his mouth as wide as possible, and place it tightly over the patient's mouth, so the patient's mouth is

completely covered by that of his benefactor. With one hand, pinch his nostrils shut. With the other hand, hold his lower jaw in a thrust-forward position and keep his head tilted back. With a baby or small child, one should place his mouth over both the child's nose and mouth, making a tight seal.

"Breathing" for the Patient

5. Blow a good lungful of air into an adult patient's mouth, continuing to keep his head tilted back and his jaw jutting out so that the air passage is kept open. (Air can be blown through an unconscious person's teeth, even though they may be clenched tightly together.) As air is blown in, watch the patient's chest. If it rises, air is getting into his lungs.

6. Remove your mouth from the patient's mouth, and listen for him to breathe out the air breathed into him. The exhaled breath may also be felt by placing the cheek close to the patient's mouth, or by observing his chest sink as he exhales.

7. Continue breathing for the patient. If he is an adult, blow a good breath into his mouth every 5 seconds, or 12 times a minute, and listen for him to breathe it back out again.

(Caution: If the patient is an infant or small child, blow *small puffs* of air into him about 20 times a minute. It is possible to rupture his lungs if too much air is blown in at one time. Watch his chest rise to make sure he is getting the right amount of air with each puff.)

8. If air is *not* getting into the patient's lungs, or if he is not breathing out the air blown into him, first make sure that his head is tilted back and his jaw is jutting out in the proper position. Then feel in his mouth or throat to make sure nothing is obstructing the air passage to his lungs.

If this does not help, turn him on his side and strike him sharply with the palm of your hand several times between his shoulder blades. This should dislodge any obstruction in the air passage. Then place him again on his back, with his head tilted back and his jaw jutting out, and resume blowing air into his mouth. If this doesn't work, try closing his mouth and blowing air through his nose into his lungs.

9. To avoid placing your mouth directly on the patient's face, it is possible to hold a cloth handkerchief, gauze or other porous material over his mouth and breathe through the cloth. But don't waste precious time looking for a cloth if one isn't handy.

10. *Important:* Even if the patient does not respond, continue efforts for one hour or longer, or until completely sure he is dead. If possible, have this confirmed by at least one other person.

To Stop Serious Bleeding

1. Apply firm, even pressure to the wound with a dressing, clean cloth, or sanitary napkin. If none of these is available, use your bare hand until something better is available. Blood must be kept from running out of the patient's body. Loss of 1 or 2 quarts will seriously endanger his life.

2. Hold the dressing in place until it can be bandaged securely. In case of an arm or leg wound, make sure the bandage is not so tight as to cut off circulation; also, raise the arm or leg above the level of the patient's heart. If the arm or leg appears broken, be sure to splint it first.

3. Treat the patient for shock.

4. If blood soaks through the dressing, do *not* remove the dressing. Apply more dressings.

5. SPECIAL ADVICE ON TOURNIQUETS: Never use a tourniquet unless excessive, life-threatening bleeding cannot be stopped by any other method. Using a tourniquet increases the chances that the arm or leg will have to be amputated later. If the situation *forces* use of a tourniquet to keep the patient from bleeding to death (for example, when a hand or foot has been cut off), follow these instructions carefully:

- Place the tourniquet *as close to the wound as possible*, between the wound and the patient's heart.
- After the tourniquet has been applied, do not permit it to be loosened (even temporarily, or even though the bleeding has stopped) by anyone except a physician, who can control the bleeding by other methods and replace the blood that the patient has lost.
- Get a physician to treat the patient as soon as possible.

The information in this story, the first of two parts, was furnished by the Defense Civil Preparedness Agency to help people prepare for a nuclear attack and learn what actions to take in case an attack should occur. The second article will discuss specifically treatment for shock, broken bones, burns and radiation sickness. All information was drawn from the DCPA publication "In Time of Emergency" (H-14), which is available without charge at local civil defense offices.

Even Untrained Persons Could Offer Help, Save Lives of Casualties from Nuclear Attack

In addition to the guidance given in the first of these two articles on emergency care of the sick and injured, there are other important first-aid measures that would save lives in a time of nuclear attack, when doctors and nurses might not be available.

This article is intended to help untrained persons treat four conditions that can cause death or permanent injury—shock, broken bones, burns and radiation sickness.

Preventing and Treating Shock

Being "in shock" means that a person's circulatory system is not working properly, and not enough blood is getting to the vital centers of his brain and spinal cord.

These are the symptoms of shock. The patient's pulse is weak or rapid, or he may have no pulse that can be found. His skin may be pale or blue, cold or moist. His breathing may be shallow or irregular. He may have chills. He may be thirsty. He may get sick at his stomach and vomit. A person can be "in shock" whether he is conscious or unconscious.

Second of 2 Parts

Important: All seriously-injured persons should be treated for shock, even though they appear normal and alert. Shock may cause death if not treated promptly, even though the injuries which brought on shock might not be serious enough to cause death. In fact, persons may go into shock without having any physical injuries.

Here is how to treat any person who may be in shock:

1. Keep him lying down and keep him from chilling, but do *not* apply a hot water bottle or other heat to his body. Also, loosen his clothing.

2. Keep his head a little lower than his legs and hips. But if he has a head or chest injury, or has difficulty in breathing, keep his head and shoulders slightly higher than the rest of his body.

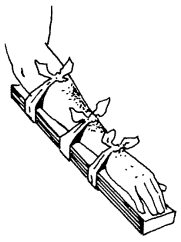
3. Encourage him to drink fluids if he is conscious and not nauseated, and if he does not have abdominal injuries. Every 15 minutes give him a half-glass of this solution until he no longer wants it: One teaspoonful of salt and a half-teaspoonful of baking soda to one quart of water.

4. Do *not* give him alcohol.

Treatment for Broken Bones

Any break in a bone is called a fracture. If there is a chance a person may have a fracture, treat it as though it were one. Otherwise, further injury may result. For example, if an arm or leg is injured and bleeding, splint it as well as bandage it.

With any fracture, first look for bleeding and control it. Keep the patient comfortably warm and quiet, preferably lying down. If there is an ice bag, apply it to the fracture to ease the pain. Do not move the patient (unless his life is in danger where he is) without first applying a splint or otherwise immobilizing the bone that may be fractured. Treat the patient for shock.



A FRACTURED ARM OR LEG should be straightened out as much as possible, preferably by having two persons gently stretch it into a normal position. Then it should be "splinted"; that is, fastened to a board or something else to prevent motion and keep the ends of the broken bone together.

As a splint, use a board, a trimmed branch from a tree, a broomstick, an umbrella, a roll of newspapers, or anything else rigid enough to keep the arm or leg straight. Fasten the arm or leg to the splint with bandages, strips of cloth, handkerchiefs, neckties, or belts. After splinting, keep the injured arm or leg a little higher than the rest of the patient's body. From time to time, make sure that the splint is not too tight, since the arm or leg may swell, and the blood circulation might be shut off.

If the broken bone is sticking out through the skin but the exposed part of it is clean, allow it to slip back naturally under the skin (but don't push it in) when the limb is being straightened. However, if the exposed part of the bone is dirty, cover it with a clean cloth and bandage the wound to stop the bleeding. Then splint the arm or leg without trying to straighten it out, and try to find a doctor or nurse to treat the patient.

A FRACTURED COLLARBONE should also be prevented from moving, until the patient can be given professional medical attention. It can be immobilized by placing the arm on the injured side in a sling and then binding the arm close to the body.

A FRACTURED RIB should be suspected if the patient has received a chest injury or if he has pain when he moves his chest, breathes or coughs. Strap the injured side of his chest with 2-inch adhesive tape if available, or with a cloth bandage or towel wrapped around and around his entire chest.

FRACTURED BONES IN THE NECK OR BACK are very serious, because they may injure the patient's spinal cord and paralyze him or even kill him. He should not be moved until a doctor comes (or a person trained in first aid), unless it is absolutely necessary to move him to prevent further injury.

If a person with a back injury has to be moved, he should be placed gently on his back on a stiff board, door or stretcher. His head, back, and legs should be kept in a straight line at all times. A person with a neck injury should be moved gently with his head, neck, and shoulders kept in the same position they were when he was found. His neck should *not* be allowed to bend when he is being moved.

Treatment for Burns

Burns are normally in three categories. First degree burns are the least serious, and appear as reddened skin, sore and tender but not blistered. Second degree burns appear as reddened and swollen skin, usually with blisters. If the blisters break, the skin has the appearance of "weeping." Third degree burns involve the total destruction of the skin, and usually some tissue beneath. The skin appears dead white, brown, bright red or charred, and may be swollen at first.

First degree burns should not be covered; in fact, nothing needs to be done for them. However, if a first degree burn covers a large area of the body, the patient should be given fluids to drink as mentioned in Item 2 that follows.

The most important things to do about second or third degree burns are: (a) Treat the patient for shock, (b) Prevent infection, and (c) Relieve pain. These specific actions should be taken:

1. Keep the patient lying down, with his head a little lower than his legs and hips unless he has a head or chest wound, or has difficulty in breathing.

2. Have him drink a half-glass every 15 minutes of a salt-and-soda solution (one teaspoonful of salt and a half- teaspoonful of baking soda to a quart of water). Give him additional plain water to drink if he wants it.

3. Cover the burned area with a *dry,* sterile gauze dressing. If gauze is not available, use a clean cloth, towel or pad.

4. With soap and water, wash the area *around* the burn. The dressing will help prevent surface washings from getting into the burned area.

5. Use a bandage to hold the dry dressing firmly in place against the burned area. This will keep moving air from reaching the burn, and will lessen the pain. Leave dressings and bandage in place as long as possible.

6. If adjoining surfaces of skin are burned, separate them with gauze or cloth to keep them from sticking together (such as between toes or fingers, ears and head, arms and chest).

7. If the burn was caused by a chemical, or by fallout particles sticking to the skin or hair, wash the chemical or the fallout particles away with generous amounts of plain water, then treat the burn as described above.

What NOT to Do About Burns

- Don't pull clothing over the burned area (cut it away, if necessary).
- Don't try to remove any pieces of cloth, or bits of dirt or debris, that may be sticking to the burn.
- Don't try to clean the burn, don't use iodine or other antiseptics on it, and don't open any blisters that may form on it.
- Don't use grease, butter, ointment, salve, petroleum jelly, or any type of medication on severe burns. Keeping them dry is best.
- Don't breathe on a burn, and don't touch it with anything except a sterile or clean dressing.
- Don't change the dressings that were initially applied to the burn, until absolutely necessary. Dressings may be left in place for a week, if necessary.

Facts About Radiation Sickness

Radiation sickness is caused by the invisible rays given off by particles of radioactive fallout. If a person has received a large dose of radiation in a short period of time—generally, less than a week—he will become seriously ill and probably will die. But if he has received only a small or medium dose, his body will repair itself and he will probably get well. No special clothing can protect a person from gamma radiation, and no special medicines can protect him or cure him of radiation sickness.

SYMPTOMS. Symptoms of radiation sickness may not be noticed for several days. The early symptoms are lack of appetite, nausea, vomiting, fatigue, weakness and headache. Later, the patient may have sore mouth, loss of hair, bleeding gums, bleeding under the skin, and diarrhea. But these same symptoms can be caused by other diseases, and not everyone who has radiation sickness shows all these symptoms, or shows them all at once.

TREATMENT. If the patient has headache or general discomfort, give him one or two aspirin tablets every 3 or 4 hours (half a tablet, for a child under 12). If he is nauseated, give him "motion sickness tablets" if available. If his mouth is sore or his gums are bleeding, have him use a mouth wash made of a salt-and-soda solution.

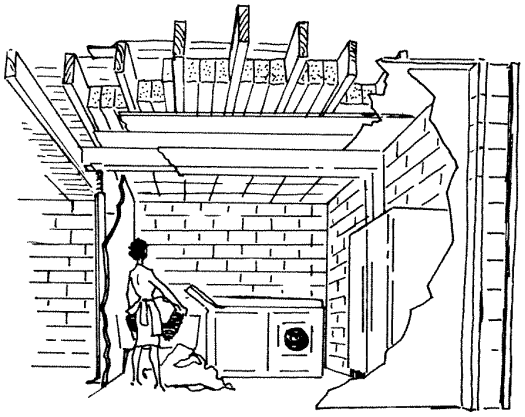
If there is vomiting or diarrhea, he should drink slowly several glasses each day of a salt-and-soda solution, plus bouillon or fruit juices. If available, a mixture of kaolin and pectin should be given for diarrhea.

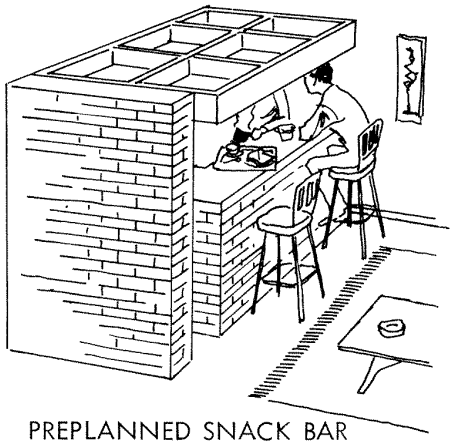
Whatever his symptoms, the patient should be kept lying down, comfortably warm, and resting.

Radiation sickness is *not* contagious or infectious, and one person cannot "catch it" from another person.

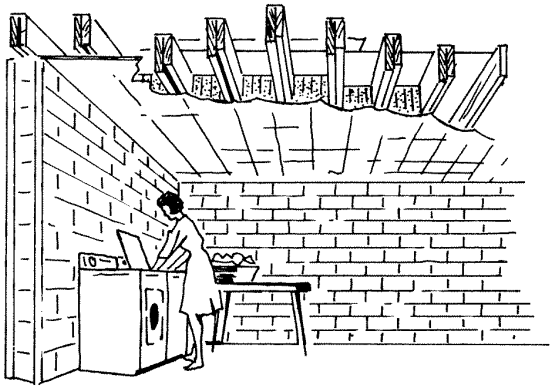
The information in this story, the last of two articles on emergency medical care, was furnished by the Defense Civil Preparedness Agency to help people prepare for a nuclear attack and learn what actions to take in case an attack should occur. Local government authorities are responsible for supplying the public with more detailed survival instructions for this area. This information was drawn from the DCPA publication "In Time of Emergency" (H-14), which is available without charge at local civil defense offices.

CEILING MODIFICATION (PLAN A)

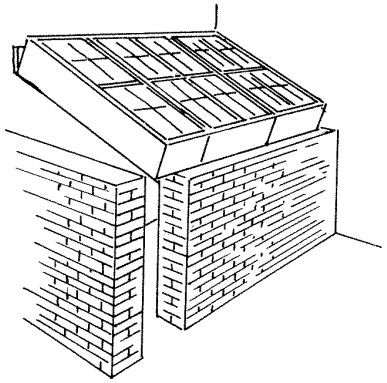




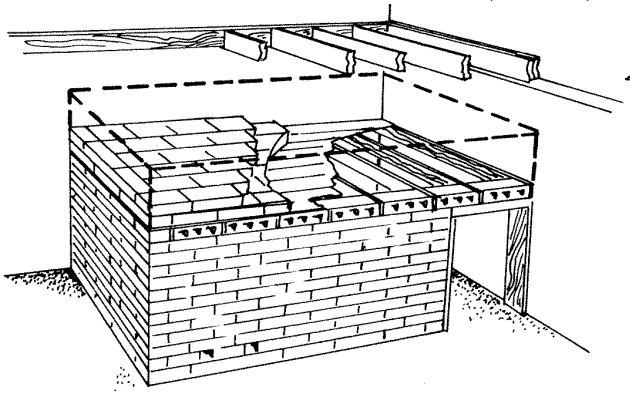
PREPLANNED SNACK BAR SHELTER (PLAN D)



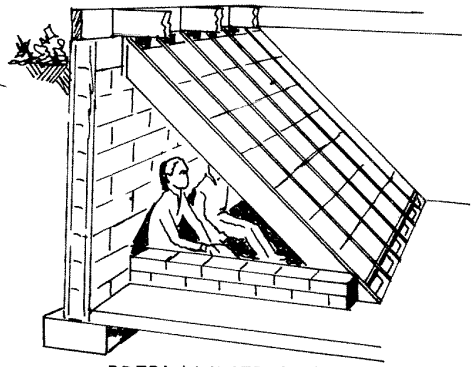
ALTERNATE CEILING MODIFICATION (PLAN B)



PREPLANNED TILT-UP STORAGE UNIT (PLAN E)



CONCRETE BLOCK OR BRICK SHELTER (PLAN C)



PREPLANNED LEAN-TO SHELTER (PLAN F)

FOR USE WITH ARTICLE 4

FOR USE WITH ARTICLE 5

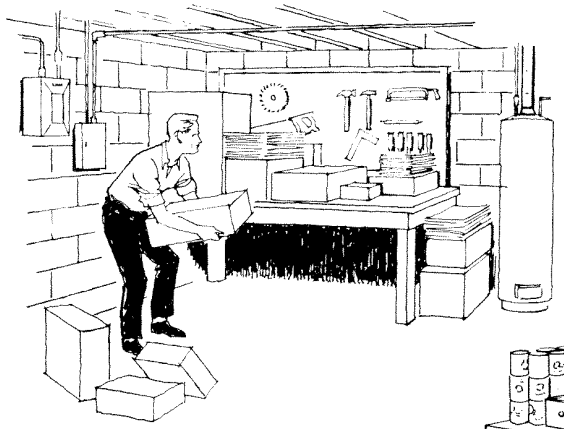
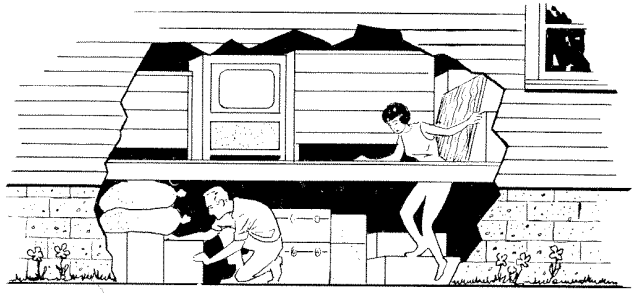
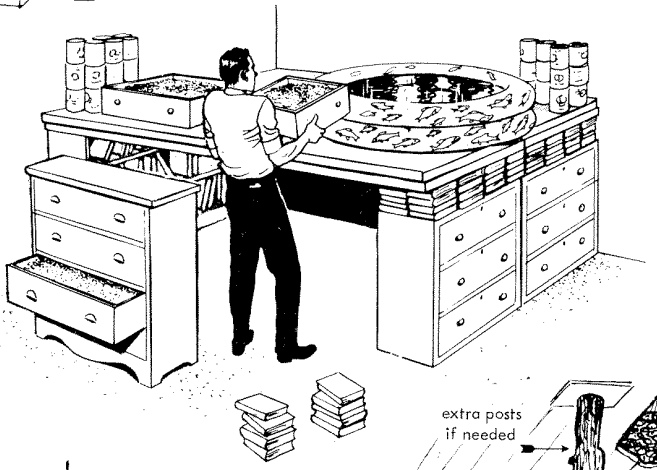


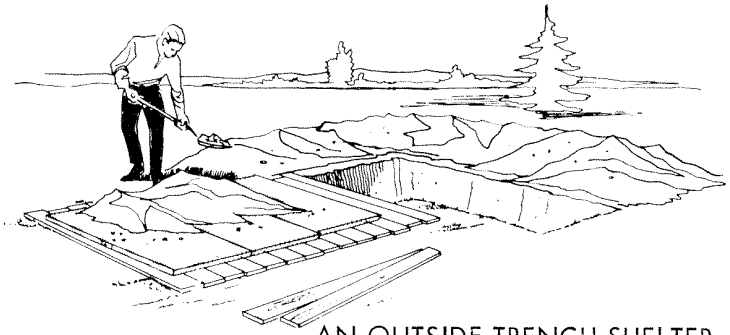
TABLE OR WORKBENCH SHELTER



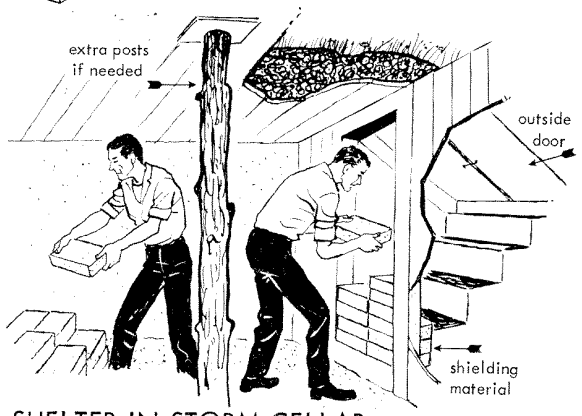
SHELTER IN A CRAWL SPACE



SHELTER FROM FURNITURE AND HOUSE DOORS



AN OUTSIDE TRENCH SHELTER



SHELTER IN STORM CELLAR

C

CORRECTION AND UPDATING OF TAB C MATERIAL

Under the headings "CONCRETE" and "VENTILATION" on page 3 of attached booklet H-12-1 ("Home Shelter"), and under the same headings on page 6 of attached booklet H-12-2 ("Above-ground Home Shelter"), the following changes should be made to make the listings current (as of October 1976):

CONCRETE -- The publication "Building Code Requirements for Reinforced Concrete (ACI 318-71)" is still valid. However, the 1974 supplement to this publication should also be requested.

VENTILATION --

Positive displacement blowers

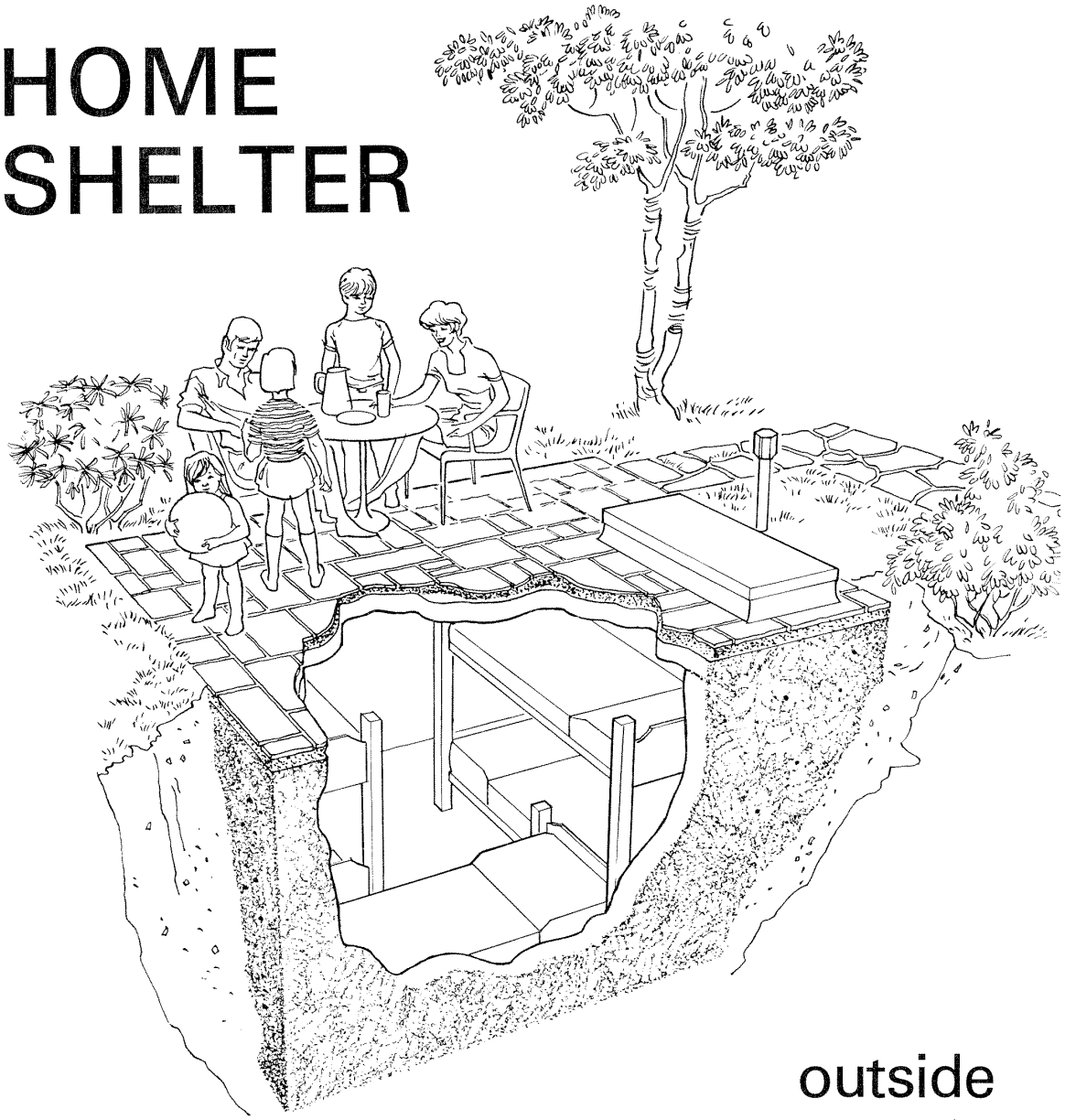
Both the Cincinnati Fan and Ventilator Company and the Champion Blower and Forge Company do not stock these blowers, and they are not shelf items. The Cincinnati Fan and Ventilator Company does have some parts in stock and can build the blowers on request. Both manufacturers have stated they do have the tooling available and can manufacture these items if the demand is great enough to go back into production.

Roof exhaust and supply ventilators

The G.C. Breidert Company and the Penn Ventilator Company still manufacture these items.

H-12-1
April 1975
(Supersedes H-12-1
dated Jan. 1969
which may be used.)

HOME SHELTER



outside concrete shelter

Protection is provided in an outside concrete shelter. The roof of the shelter can be used as an attractive patio.

DEPARTMENT OF DEFENSE • DEFENSE CIVIL PREPAREDNESS AGENCY

GENERAL INFORMATION

This family fallout shelter, designed primarily for homes without basements, is a permanent home shelter to be placed in the yard. It is designed to have a protection factor of at least 40, which is the minimum standard of protection for public shelters throughout the United States. This assures that persons inside the shelter will be adequately protected against radioactive fallout following a nuclear attack, and will also have some protection against blast and fire effect of nuclear explosions. [1]

Following are detail drawings of the shelter, which is capable of housing six adults. It can be built of poured reinforced concrete, precast concrete slabs, or a combination of concrete blocks and poured concrete. If it is built as detailed with the top near ground level, the roof slab can be used as an outdoor patio. The shelter is accessible by a hatch-door and wood stairway. Fresh air is provided by a hand-operated centrifugal blower and two ventilating pipes that extend above ground level. In areas where there is poor drainage or where the ground water table is close to the surface, the fourth modification on page 5 should be used.

Before starting to build the shelter, make certain that the plan conforms to the local building code. Obtain a building permit if required. If the shelter is to be built by a local contractor, engage a reliable firm that will do the work properly and offer protection from any liability or other claims arising from its construction.

GUIDE TO CONTRACTS AND SPECIFICATIONS

It is generally advisable to have a written contract with your contractor, as well as technical specifications to supplement the drawing. A widely used and convenient contract form for construction of this size is the AIA Document A 107, "Short Form For Small Construction Contract - Stipulated Sum," which is available from the American Institute of Architects, 1785 Massachusetts Ave., Washington, D. C. 20036. It would be impractical to write a technical specification to suit every local condition; however, the following summary of generally accepted construction materials and practices should be a useful guide.

EXCAVATION

The excavation should have side slopes gradual enough to prevent caving, or appropriate shoring should be provided. Materials used for backfill and embankment should have debris, roots and large stones removed before placement. The subgrade for the floor slab should be level for ease in placing waterproofing membrane and to provide uniform bearing conditions for the structure. The area surrounding the patio should be sloped away at a minimum grade of 1 inch per 10 feet to provide good drainage.

[1] This shelter will withstand overpressures of up to 5psi, and provides excellent protection from tornadoes.

CONCRETE

For details of concrete construction, the "Building Code Requirements for Reinforced Concrete (ACI 318 - 71)" should be followed. This publication can be obtained from the American Concrete Institute, Detroit, Michigan 48219.

WATERPROOFING

Waterproofing specifications may be obtained from the nearest FHA (Federal Housing Administration) office, or those of a reputable manufacturer of waterproofing materials may be used.

VENTILATION

The ventilation piping for the shelter should be installed in accordance with the practices outlined in the "National Plumbing Code (ASA A40.8 - Latest Edition)." This publication may be secured from the American Society of Mechanical Engineers, New York, N.Y. 10018. All pipe and fittings shall be galvanized. Suitable ventilating blowers and roof ventilators are available from many sources of supply. Fabrication details and consequently the installation requirements will differ for equipment furnished by the various manufacturers. Positive-displacement blowers having both electric motor and geared hand-crank drives have been manufactured by:

Cincinnati Fan and Ventilator Co.
6516 Wiehe Road
Cincinnati, Ohio 45237

Champion Blower and Forge Co.
Lancaster, Pennsylvania 17604

Roof exhaust and supply ventilators are manufactured by:

The G. C. Breidert Co.
13690 Vaughn St.
San Fernando, California 91341

Penn Ventilator Co.
Eleventh St. & Allegheny Ave.
Philadelphia, Pennsylvania 19140

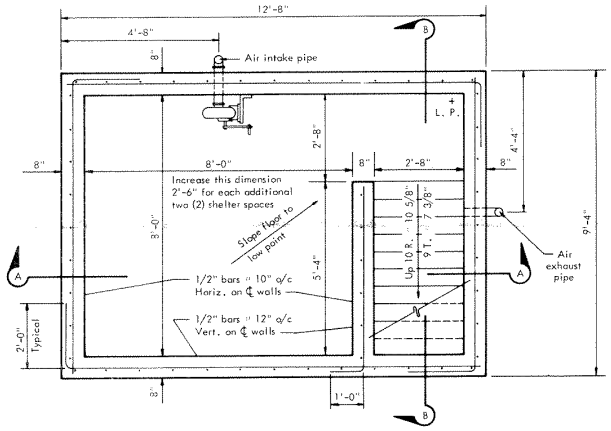
The names of specific manufacturers of equipment are given only as examples, and do not denote a preference for their products.

OPTIONS

To accommodate additional persons, increase the shelter length 2'-6" for each two (2) shelter spaces. Do not increase the 9'-4" width.

Electrical service for lighting and outlets may be installed in the shelter from a separate residence circuit. A branch circuit breaker should be installed inside the shelter. Additional lighting and outlets may be provided from this circuit for the patio above.

An electric motor and pully may be installed to operate the centrifugal hand-crank blower by virtue of the electrical service option.



PLAN

NOTES

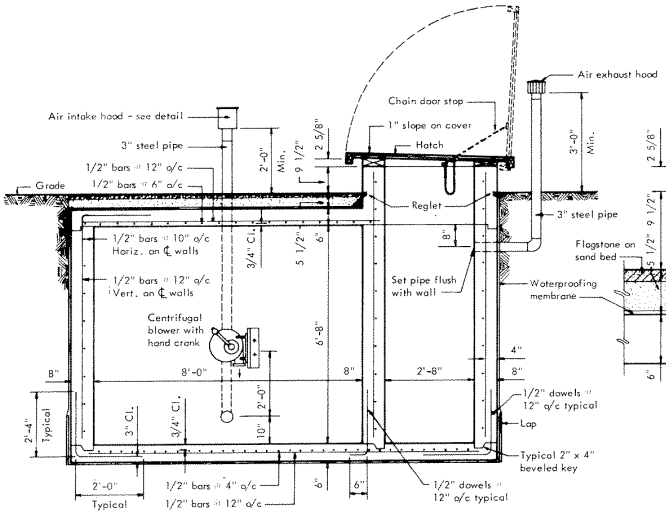
Exterior walls, roof slab and under floor slab shall be waterproofed with a 3 ply membrane waterproofing system. This provides a continuous blanket which seals the entire area of surface to be protected. The membrane shall be protected from back fill damage and when completing other stages of construction.

Place flagstone or bricks on a sand bed when using the roof slab as a patio.

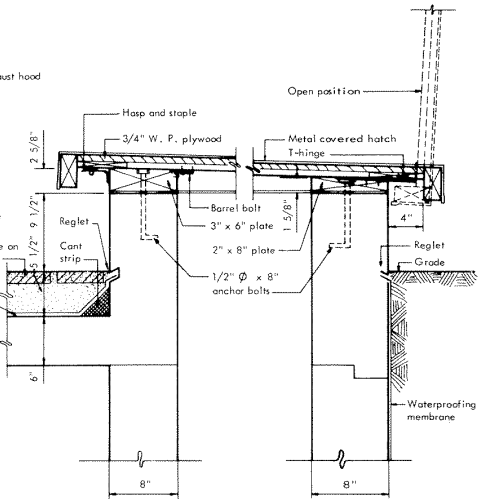
There are a number of commercially produced metal roof hatches that will adequately serve as a shelter door. However, as long as the door is weatherproof and durable, a job-made, galvanized sheet metal covered wood door is suitable.

Bevel all exposed corners of concrete 3/4" at 45°.

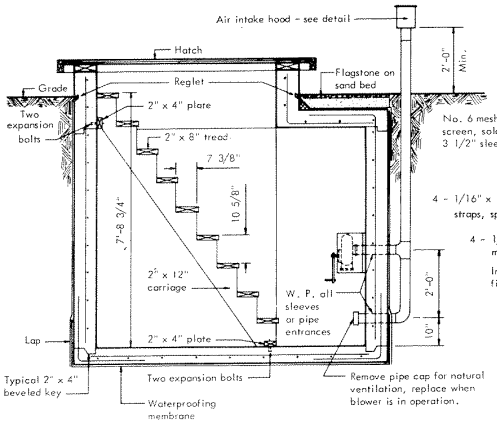
Structural design data:
Steel = 20,000 psi
Concrete = 2,500 psi
Soil (minimum) = 600 psf, to withstand downward pressure



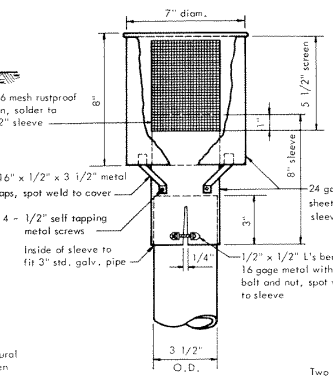
SECTION A-A



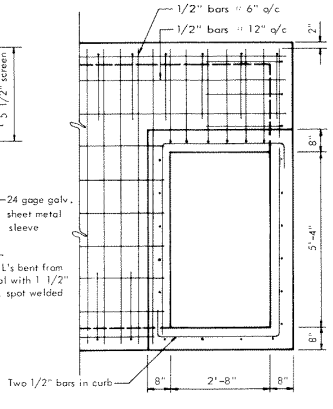
HATCH DETAIL



SECTION B-B

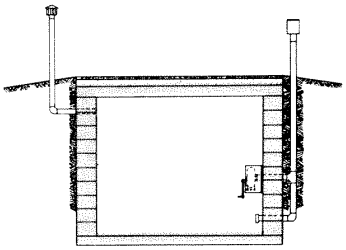


AIR INTAKE HOOD DETAIL



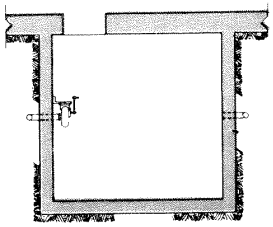
HATCH FRAMING

MODIFICATIONS



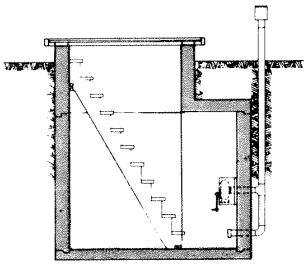
SECTION

This first modification utilizes 12-inch concrete masonry units for walls instead of reinforced concrete. The floor, roof and entranceway are the same as in the basic shelter, and the amount of protection provided is essentially the same.



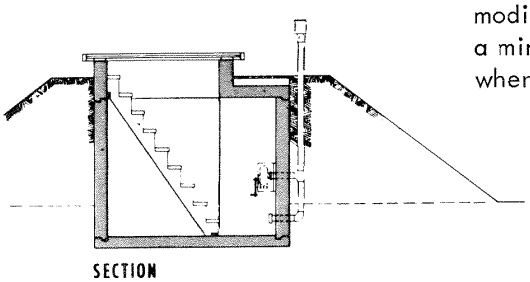
PLAN

If a basement is available, the shelter may either be separate from it, or attached. In this modification, an attached shelter is entered through the basement of the house, thereby permitting dual use of the shelter space. Other advantages of this modification include flexibility of shape and design to conform to the house design and the use of the same kind of building materials as used in the construction of the house.



SECTION

If the topography permits, the shelter can be built into a hillside or embankment. This modification increases the protection factor by the addition of an earth mound over the shelter. A maximum of 3 feet of earth cover is recommended.



SECTION

The principal advantage of this shelter modification is that it can be erected with a minimum of excavation in locations where there is poor drainage or where the ground water table is close to the surface. However, the exposure of the shelter above ground requires the addition of earth mounding around all sides.

MATERIAL LIST

Item		Quantity
Concrete:*		
floor		60 cu. ft.
walls		235 cu. ft.
roof		50 cu. ft.
		345 cu. ft.
	Total	13 cu. yds.
Steel Reinforcing:		
floor		580 lin. ft.
walls		945 lin. ft.
roof		260 lin. ft.
	Total	1,785 lin. ft.
Miscellaneous:		
tie wire - 6" coils		2
hand blower w/mounting bracket		1
3" galv. steel pipe		16 lin. ft.
3" galv. ells		2
3" galv. tee		1
3" galv. cap		1
intake hood, w/screen		1
exhaust hood, w/screen		1
wood carriages, 2" x 12" x 10'		2
wood treads, 2" x 8" x 2'-8"		9
wood plates, 2" x 4" x 2'-8"		2
hatch door, metal covered		1
wood plate, 2" x 8" x 7'		1
wood plate, 3" x 8" x 14'		1
T-hinges, 8" x 5-1/2" E.H., galv.		3
hasp and staple, galv.		1
chain door stop, galv.		1
anchor bolts, 1/2" ϕ x 8"		8
expansion shields and bolts, 3/8" ϕ x 4"		4
waterproofing membrane		715 sq. ft.
flagstone		100 sq. ft.
sand		1.5 cu. yds.
cant strip		12 lin. ft.

*Form work not included.

Distribution:
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ABOVEGROUND HOME SHELTER

H-12-2
FEBRUARY 1973
(Supersedes H-12-2
dated Sept. 1969
which may be used)

Protection is provided in an outside aboveground shelter. The shelter can be used as a tool shed or workshop.

Defense Civil Preparedness Agency

GENERAL INFORMATION

This family shelter is intended for persons who prefer an aboveground shelter or, for some reason such as a high water table, cannot have a belowground shelter. In general, belowground shelter is superior and more economical than an aboveground shelter.

The shelter is designed to meet the standard of protection against fallout radiation that has been established by the Defense Civil Preparedness Agency for public fallout shelters. It can also be constructed to provide significant protection from the effects of hurricanes, tornadoes, and earthquakes, and limited protection from the blast and fire effects of a nuclear explosion. 1/ It has sufficient space to shelter six adults.

The shelter can be built of two rows of concrete blocks, one 12" and one 8", filled with sand or grout, or of poured reinforced concrete. Windows have been omitted; therefore, electric lights are recommended for day to day use.

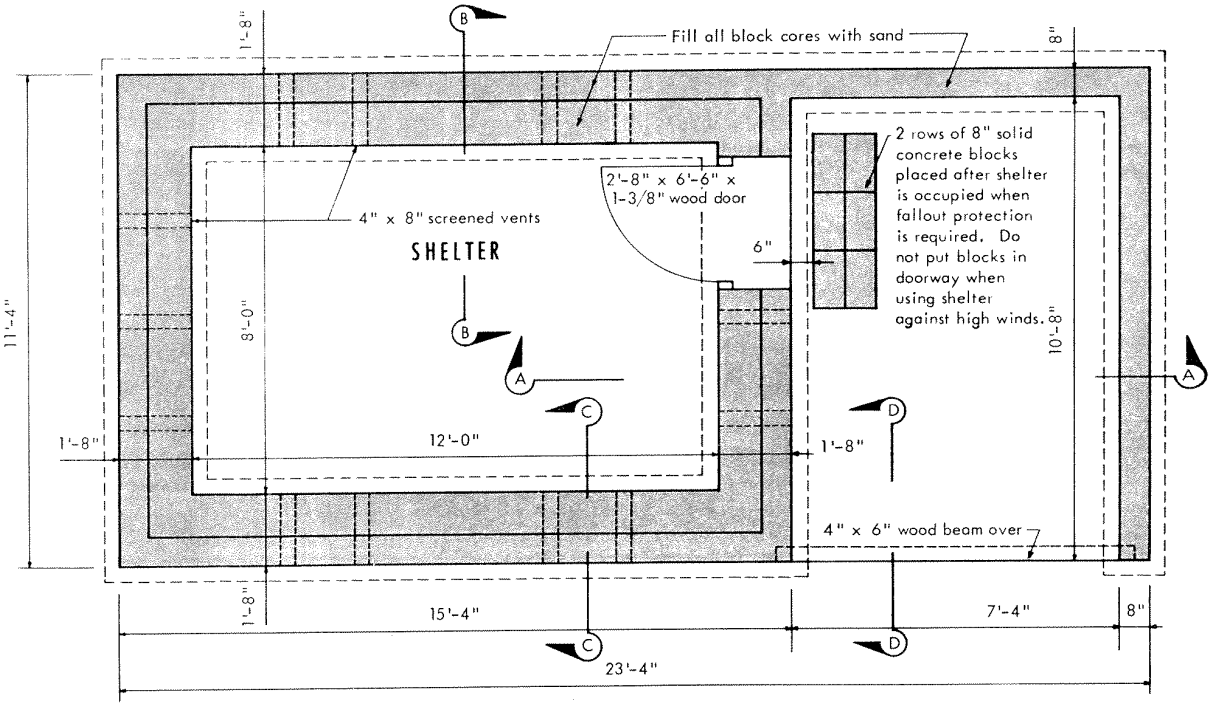
The details and construction methods are considered typical. If materials other than shown are selected -- for example, concrete block faced with brick -- care should be taken to provide at least the same weight of materials per square foot: 200 lb. per sq. ft. in the walls and 100 lb. per sq. ft. in the roof. The wood frame roof over the reinforced concrete ceiling probably would be blown off by extremely high winds such as caused by a blast wave or tornado. However, the wood frame roof is intended primarily for appearance; the concrete ceiling provides the protection. When using the shelter for protection against high winds, DO NOT place the concrete blocks in the doorway or windows.

This structure has been designed for areas where frost does not penetrate the ground more than 20 inches. If 20 inches is not a sufficient depth for footings, one or two additional courses of concrete blocks may be used to lower the footings. Average soil bearing pressure is 1,500 lb. per sq. ft. Most soils can be assumed to support this pressure without special testing or investigation.

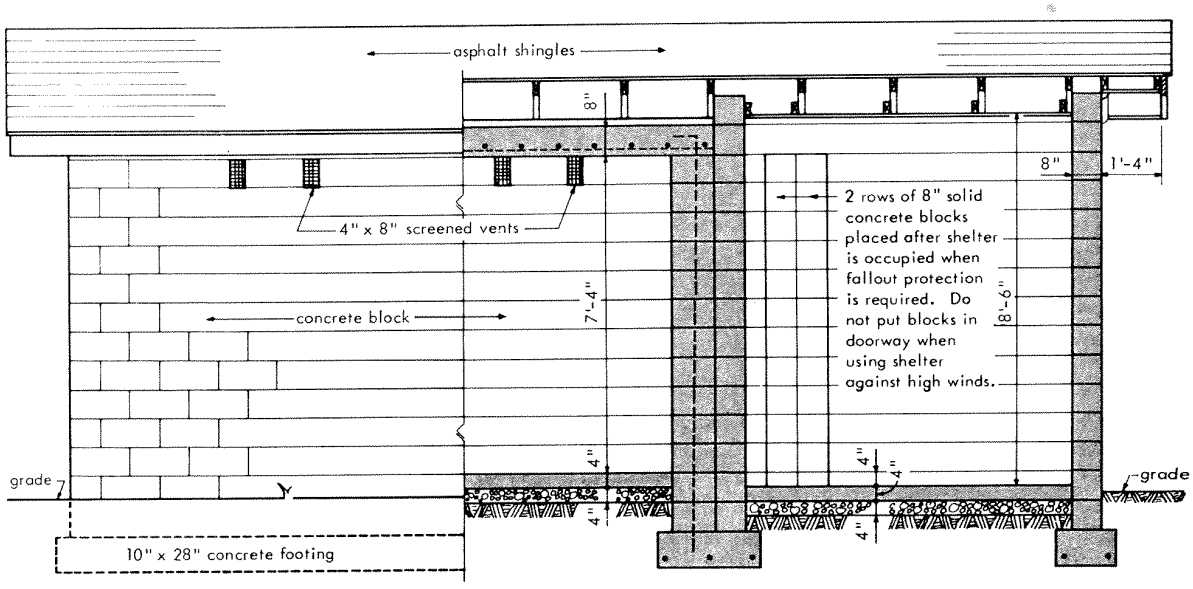
The baffle wall outside the entrance to the shelter is extended out 7'-4" to allow storage of lawn equipment such as wheelbarrows and lawn mowers. If additional space is desired, extend this dimension.

Before starting to build the shelter, make certain that the plan conforms to the local building code. Obtain a building permit if required. If the shelter is to be built by a contractor, engage a reliable firm that offers protection from any liability or other claims arising from its construction.

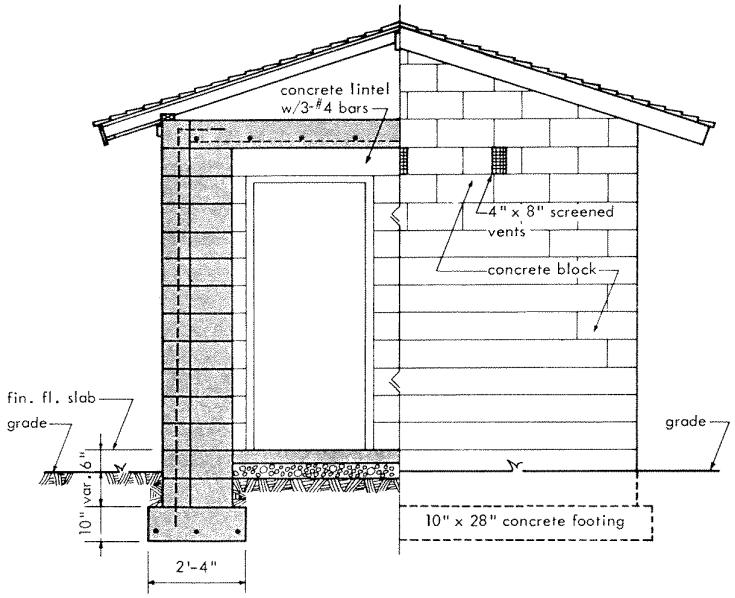
1/ This shelter will withstand overpressures of up to 5 p.s.i.



PLAN



ELEVATION **SECTION A-A**



SECTION B-B ELEVATION

NOTES

Provide horizontal joint reinforcement for 1'-8" walls in every third course and metal cross ties at 2'-0" o.c. in every alternate course.

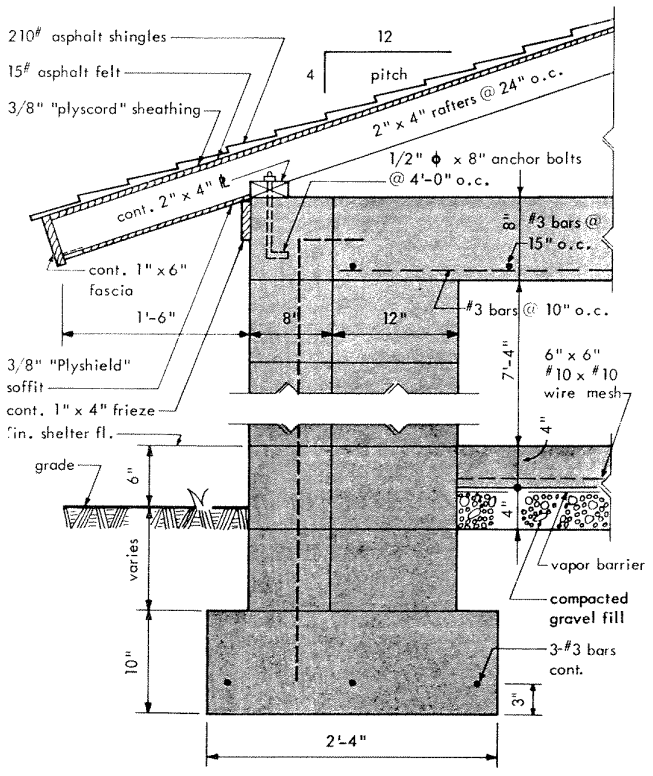
If concrete is used in place of block, the walls of the shelter shall be 1'-2" thick with #4 bars at 14" o.c., each way, each side.

The dimension from finish grade to bottom of footings is dependent upon the depth of frost and varies with geographic location. Consult your local building code.

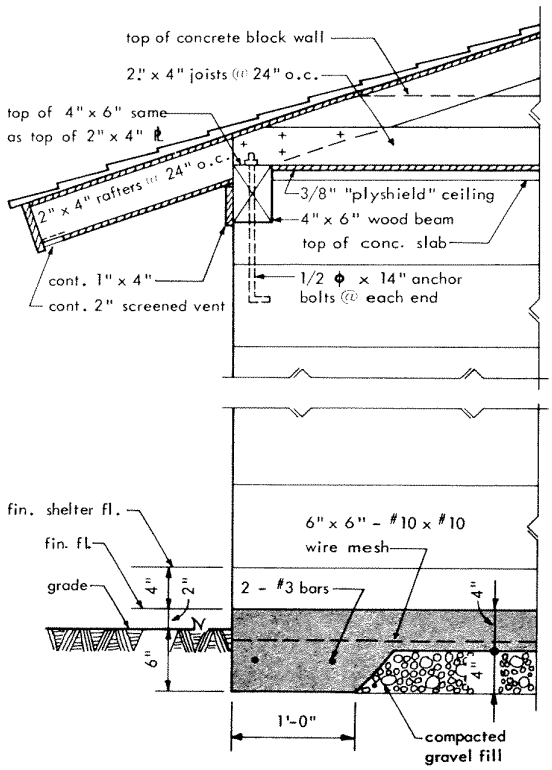
In areas subject to hurricanes, tornadoes, or earthquakes, walls shall be reinforced with #4 bars at 16" o.c. vertically. Place bars in block cells and then fill with grout. Lap bars between wall and footing dowels, and between wall and roof slab.

The wood frame roof over the reinforced concrete ceiling probably would be blown off by extremely high winds such as caused by a blast wave or tornado. However, this roof is primarily intended for appearance; The concrete ceiling provides the protection.

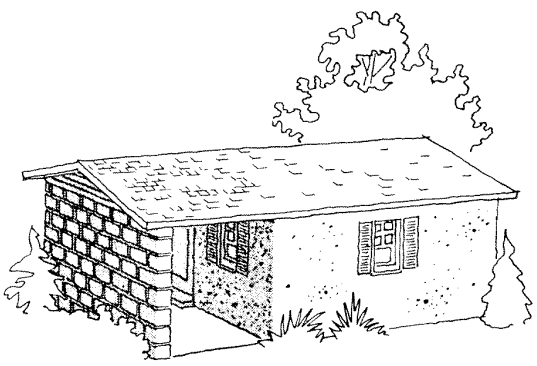
Structural design data:
Steel = 20,000 psi
Concrete = 2,500 psi
Soil (minimum) = 1,500 psf



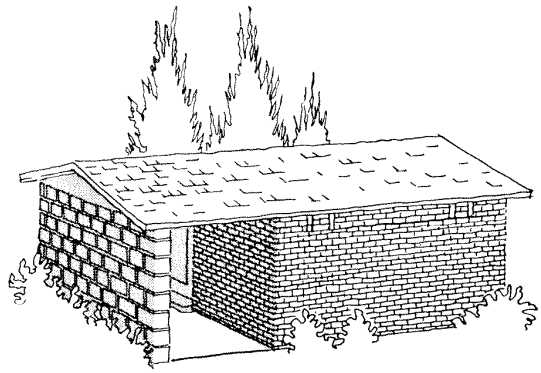
SECTION C-C



SECTION D-D

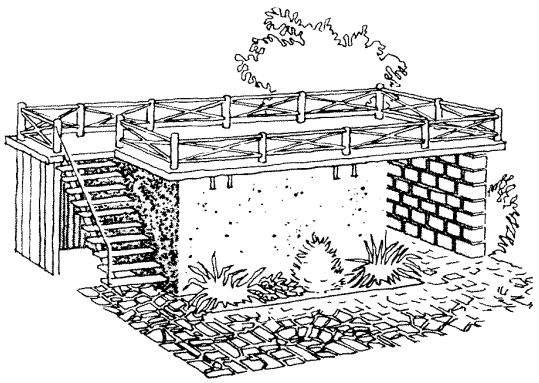


FIRST ALTERNATE indicates windows in the workshop area. Solid blocks, equal to a thickness of 12 inches, should be available to fill these openings to provide adequate fallout protection. Window sizes should be kept small. When using the shelter for protection against high winds, do not place the concrete blocks in the doorway or windows.



SECOND ALTERNATE shows the cement block faced with bricks. Use one course 4-inch brick and two courses of 8-inch cement block to obtain the required weight per unit area.

THIRD ALTERNATE is to attach the tool shed or workshop to the house, with a covered area between. In this case, the facing materials should match the house.



FOURTH ALTERNATE is to install built-up roofing of asphalt or tar, or other wearing surface, on top of the concrete deck.

GUIDE TO CONTRACTS AND SPECIFICATIONS

It is generally advisable to have a written contract with your contractor as well as specifications to supplement the drawing. A widely used and convenient contract form for construction of this size is AIA Document A 107, "Short Form For Small Construction Contract Stipulated Sum," which is available from the American Institute of Architects, 1785 Mass. Ave., Washington, D.C. 20036. It would be impractical to write a specification to suit every local condition; however, the following summary of generally accepted construction materials and practices is a useful guide:

CONCRETE

For details of concrete construction, follow "Building Code Requirements for Reinforced Concrete (ACI-318-71)." This publication can be obtained from the American Concrete Institute, Detroit, Michigan 48219.

DAMPPROOFING

Dampprcofing the bottom slab is necessary to make the room more comfortable in most areas. Any contractor will be accustomed to compacting gravel and applying a polyethylene vapor barrier course. In areas that regularly experience high humidity, the outside walls of the block or concrete should be treated with a colorless type of protective coating material which is readily available at building supply stores. In areas of very low humidity, dampproofing might be omitted.

VENTILATION

Ventilation is obtained by natural convection. Air will enter the doorway and be exhausted through the holes at the ceiling. If a roof exhaust ventilation system is desired, the following manufacturers make units that will meet the requirements:

The G.C. Breidert Co.*/
13690 Vaughn St.
San Fernando, California 91341

Penn Ventilator Co.*/
Eleventh St. & Allegheny Ave.
Philadelphia, Pennsylvania 19140

*/The listing of names of specific manufacturers of equipment does not denote a preference for their products.

OPTIONS

To accommodate additional persons, increase the shelter length 2'-6" for each two shelter spaces. Do not increase the 8'-0" width.

Lighting and receptacles may be installed with electric service obtained from a separate residence circuit. A branch circuit breaker should be installed inside the shelter.

MATERIALS LIST

Item		Quantity
Concrete:		
footings		4.5 cu. yd.
floor		2.3 cu. yd.
ceiling		3.4 cu. yd.
	Total:	10.2 cu. yd.
Steel Reinforcing:		
footings (3# deformed bars)		198 lin. ft.
ceiling (3# deformed bars)		257 lin. ft.
walls (4# deformed bars for hurricane, tornado, or earthquake resistance)	approx.	300 lin. ft.
	Total:	755 lin. ft.
tie wire		100 lin. ft.
Masonry:		
8" X 8" X 16" hollow concrete blocks		800
12" X 8" X 16" hollow concrete blocks		430
8" X 8" X 16" solid concrete blocks		75
sand (to fill cores)		12-1/2 yd.
Mortar:		
sand		1-1/2 yd.
portland cement		9 bags
lime		2 bags
Lumber: ("construction"grade)		
2" X 4" X 8'-0" roof rafters		32 pcs.
1" X 6" ridge		26 lin. ft.
2" X 4" X 12'-0" ceiling joists		5 pcs.
4" X 6" X 8'-0" beam		1 pc.
2" X 4" bearing plate		36 lin. ft.
4'-0" X 8'-0" X 3/8" "plyscord" sheathing		13 sheets
4'-0" X 8'-0" X 3/8" "plyshield" soffit & ceiling		6 sheets
1" X 4" X 3/4"		48 lin. ft.
1" X 6" X 3/4"		84 lin. ft.
3/4" - 1/4¢		24 lin. ft.
2'-8" X 6'-6" X 1 3/8" solid core wood door		1
2'-8" X 6'-6" X 5 1/2" wood jamb		1

Miscellaneous:

15# roofing felt	4 1/2 squares
210# asphalt shingles	4 1/2 squares
1/2" ϕ X 8" anchor bolts	12
1/2" ϕ X 14" anchor bolts	2
copper screen	20 sq. ft.
6" X 6" - #10 X #10 wire mesh	200 sq. ft.
polyethylene vapor barrier (4 mil)	200 sq. ft.
gravel fill	2 1/2 yds.
4" butts w/screws	3
lockset	1
16d common nails	25 lb.
8d common nails	20 lb.
6d common nails	10 lb.
8d casing nails	5 lb.
exterior paint, primer	5 gal.
exterior paint, 2 coats	6 gal.
interior paint, primer	4 gal.
interior paint, 2 coats	5 gal.

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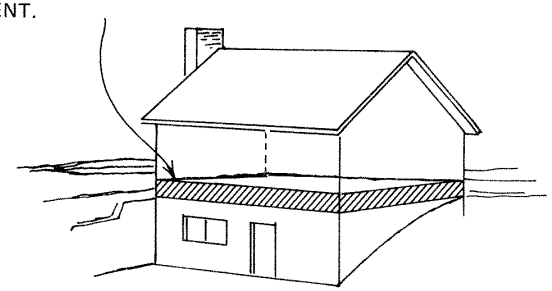
D

fallout protection for homes with basements
(partially belowground)

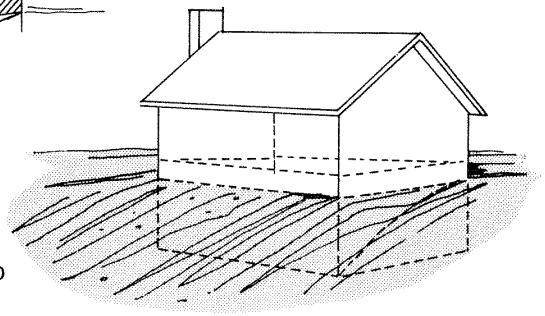
HOMES WITH BASEMENTS PARTIALLY BELOWGROUND ALSO HAVE POTENTIAL FOR PROVIDING FALLOUT PROTECTION BUT NOT AS MUCH AS THOSE WITH BASEMENTS COMPLETELY BELOWGROUND.

TO IMPROVE THE FALLOUT PROTECTION IN THE BASEMENT AREA, TWO THINGS MUST BE DONE; (1) PROVIDE AN OVERHEAD BARRIER AND, (2) INCREASE THE BARRIER (THICKNESS) OF THE EXPOSED BASEMENT WALLS. THIS CAN BE ACCOMPLISHED AS SHOWN IN SKETCHES. BOTH STEPS MUST BE TAKEN TO OBTAIN THE FALLOUT PROTECTION. DOING ONLY ONE STEP IS NOT ENOUGH.

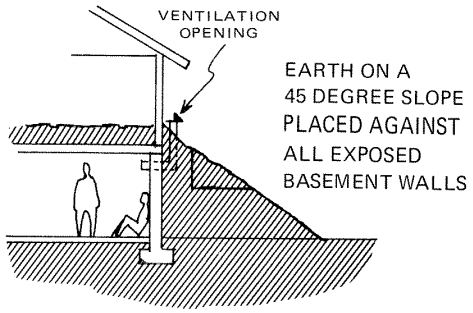
STEP ONE – PROVIDE OVERHEAD BARRIER BY PLACING 12" OF EARTH ON ROOF OR ON FLOOR OVER BASEMENT.



STEP TWO – IMPROVE VERTICAL BARRIER BY PLACING EARTH AGAINST ALL EXPOSED BASEMENT WALLS. COVER WINDOWS IN BASEMENT WALLS WITH WOOD TO PREVENT GLASS BREAKAGE DUE TO EARTH PRESSURE.

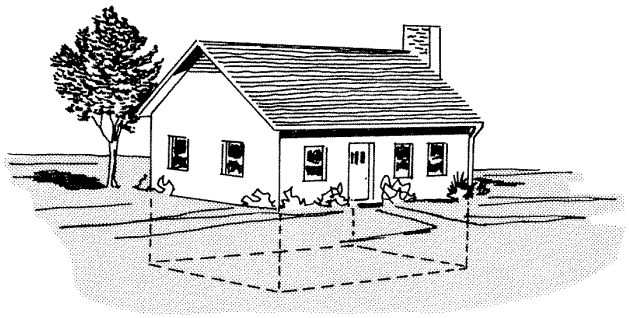


EARTH PILED AGAINST EXPOSED BSMT WALLS

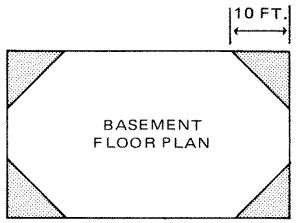


EARTH ON A 45 DEGREE SLOPE PLACED AGAINST ALL EXPOSED BASEMENT WALLS

fallout protection for homes with basements
(fully belowground)



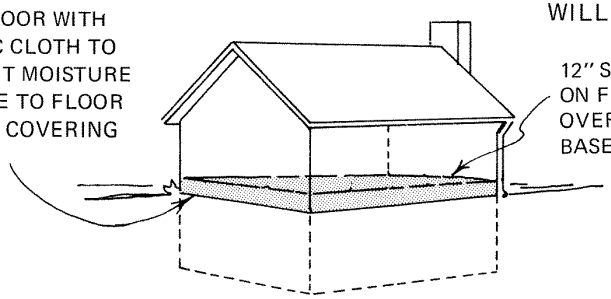
HOMES WITH BASEMENTS (COMPLETELY BELOWGROUND) ALREADY HAVE FALLOUT PROTECTION ESPECIALLY IN THE CORNERS OF THE BASEMENT.

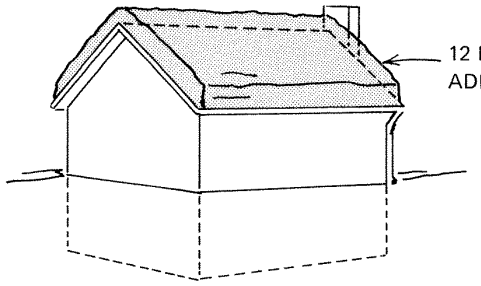


SHELTER AREA IN CORNERS

THIS PROTECTION CAN BE ENHANCED CONSIDERABLY BY PLACING 12 INCHES OF EARTH OVER THE ENTIRE FLOOR COVERING THE BASEMENT AREA. PLACING EARTH ON THE ROOF OF THE HOME WILL ALSO INCREASE THE FALLOUT PROTECTION.

LINE FLOOR WITH PLASTIC CLOTH TO PREVENT MOISTURE DAMAGE TO FLOOR OR RUG COVERING



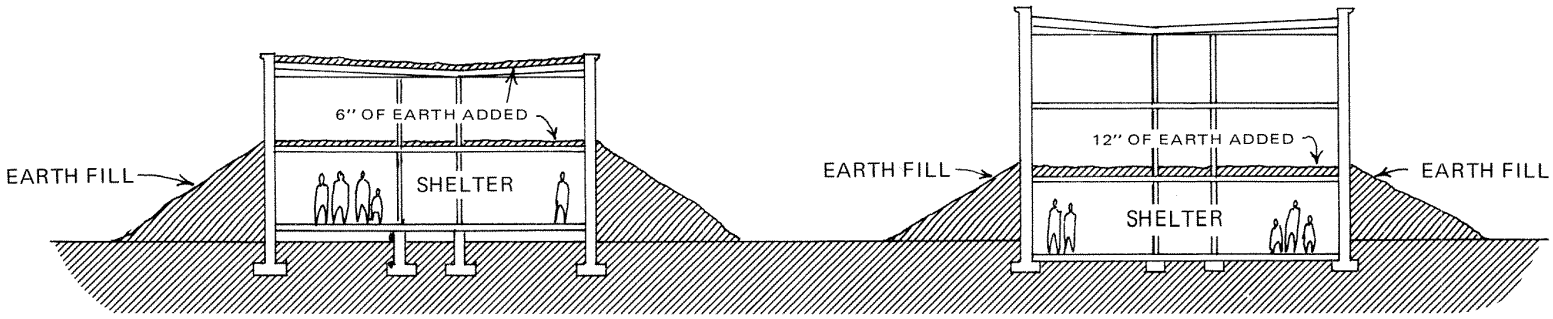


UPGRADING THE BASEMENT SHELTER PERMITS THE ENTIRE BASEMENT AREA TO BE FALLOUT PROTECTED, THUS ALLOWING THE HOMEOWNER TO SHARE THE BASEMENT WITH OTHERS.

REMEMBER: THE MORE MATERIAL YOU ADD THE GREATER THE PROTECTION. A WORD OF CAUTION: PLACING MORE THAN 12 INCHES OF EARTH ON FLOOR OR ROOF WITHOUT PROVIDING ADDITIONAL SHORING MAY CAUSE JOISTS TO SAG EXCESSIVELY AND FAIL.

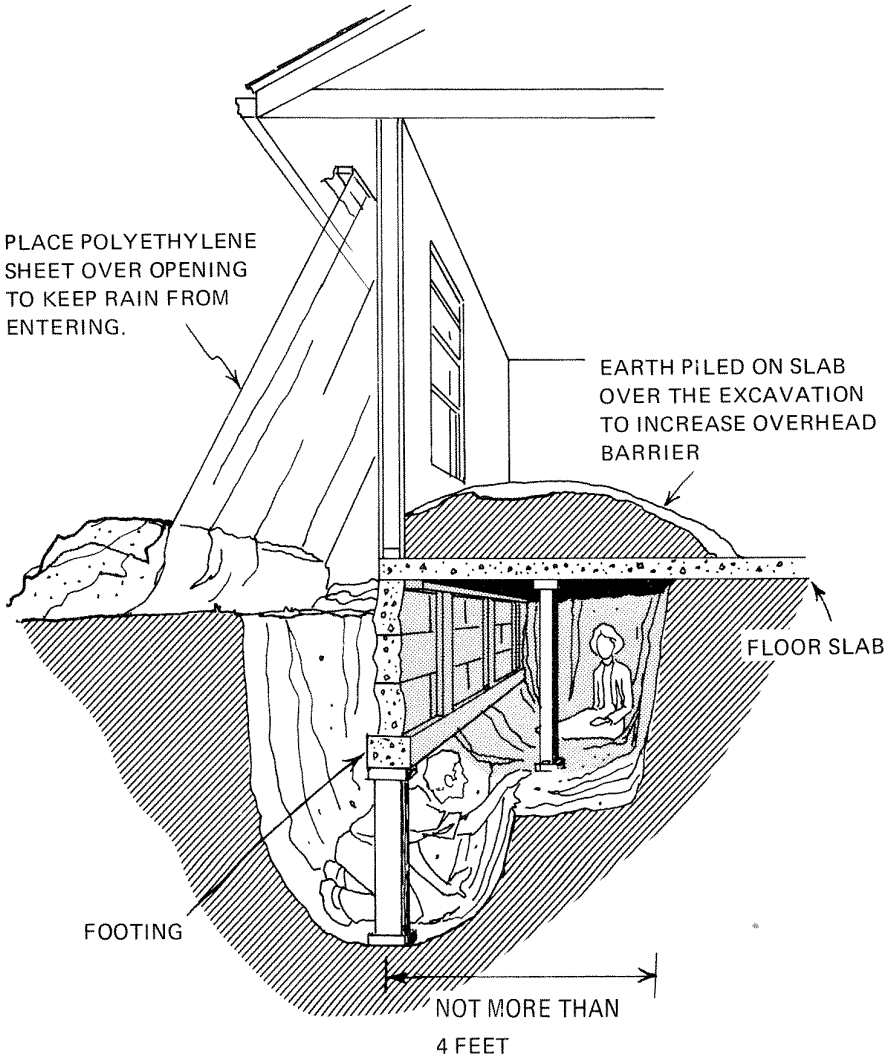
fallout protection in school buildings

EXISTING SCHOOL BUILDINGS CAN SERVE AS CONGREGATE CARE FACILITIES FOR RISK AREA EVACUEES. BEST FALLOUT PROTECTION CAN BE FOUND IN INTERIOR CORRIDORS AND ROOMS ON THE LOWEST FLOOR, ESPECIALLY IF THE SCHOOL HAS TWO OR MORE STORIES AND THE EXTERIOR WALLS ARE OF CONCRETE OR MASONRY CONSTRUCTION. FALLOUT PROTECTION CAN BE IMPROVED BY PROVIDING ADDITIONAL VERTICAL AND HORIZONTAL BARRIERS OF EARTH AS SHOWN IN SKETCHES. WINDOWS IN EXTERIOR WALLS THAT ARE TO BE COVERED WITH EARTH SHOULD BE PROTECTED WITH LUMBER OR PLYWOOD SHEETS SO THAT THEY WILL NOT BREAK UNDER THE EARTH FILL.



NOTE:
ADDITIONAL VENTILATION WILL BE REQUIRED SEE DESIGN OF AIR VENTILATION PUMP

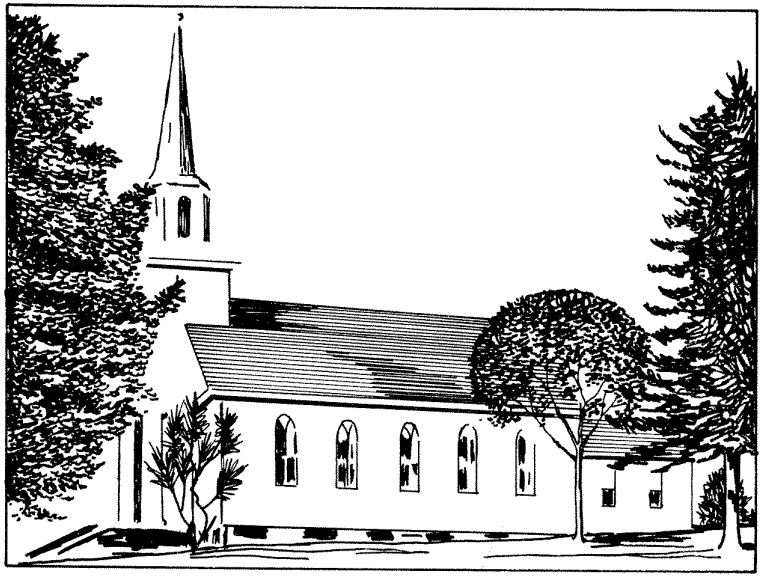
fallout protection for homes without basements



IN ORDER TO PROVIDE EXPEDIENT FALLOUT PROTECTION TO HOMES WITHOUT BASEMENT, ONE APPROACH IS TO EXCAVATE BENEATH THE FLOOR SLAB AS DEPICTED IN THE SKETCH. BEING UNDER AN EAVE WILL, IN MANY CASES, KEEP RAINWATER OUT OF THE TRENCH AND THE SHELTER ENTRY TUNNEL. ONCE THE BOTTOM OF THE FOUNDATION WALL IS REACHED, A TUNNEL IS DUG UNDER THE FOOTING AND THE MATERIAL REMOVED FROM UNDERNEATH THE SLAB TO CREATE THE SHELTER. THE SHELTER IS OFFSET FROM THE TRENCH SO THAT THE SHELTER WALL IS NOT EXPOSED ON THE OUTSIDE. THE "HOLLOWED-OUT" SHELTER AREA CAN VARY IN SIZE, BUT IT SHOULD NOT EXTEND MORE THAN 4 FEET FROM THE FOUNDATION WALL.

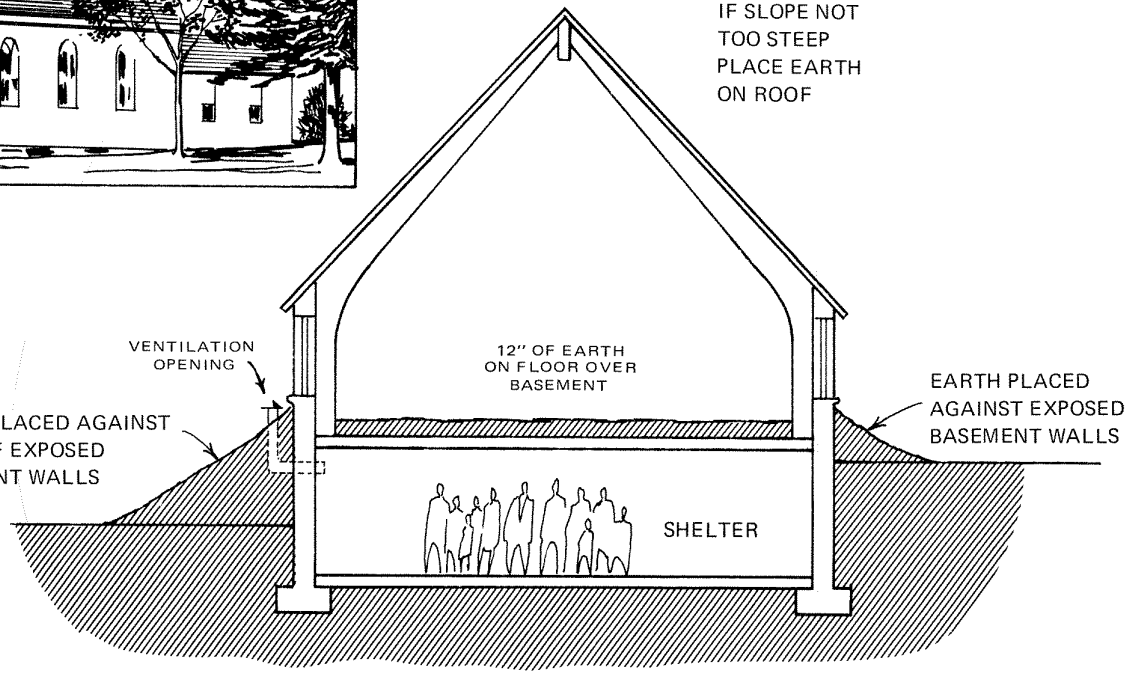
IT IS EXPECTED THAT A TYPICAL SIZE FOR A 4-PERSON SHELTER MIGHT BE 4 FT. DEEP, 4 FT. HIGH, AND 6 TO 8 FT. LONG. SOME OF THE DIRT FROM THE TRENCH CAN BE PILED ON THE SLAB OVER THE SHELTER AND ALSO AGAINST ANY EXPOSURE AT THE TOP OF THE FOUNDATION WALL. ALTHOUGH THE EAVE WILL HELP TO KEEP RAIN OUT OF THE TRENCH, IT WOULD PROBABLY BE WELL TO STRETCH A SHEET OF POLYETHYLENE FROM THE ROOF TO THE OUTER EDGE OF THE DIRT PILE. THIS WOULD HELP TO ASSURE RAINWATER NOT ENTERING THE SHELTER TUNNEL.

fallout protection in churches

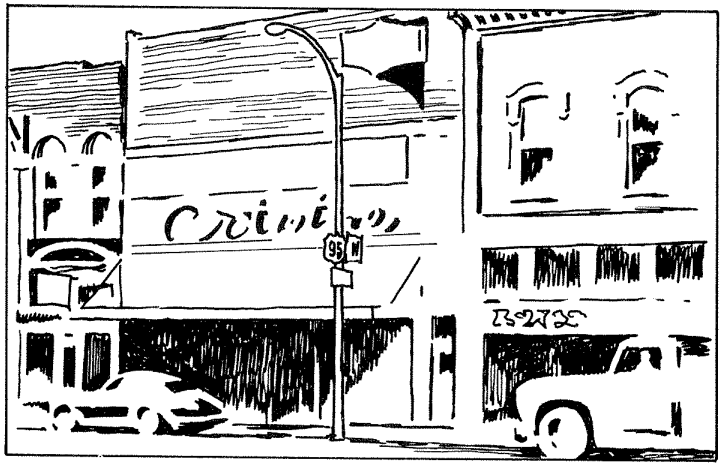


EXISTING CHURCH BUILDINGS CAN SERVE AS CONGREGATE CARE FACILITIES FOR RISK AREA EVACUEES. BEST PROTECTION CAN BE FOUND IN THOSE BUILDINGS THAT HAVE MASONRY EXTERIOR WALLS AND BASEMENTS. SHELTER IN THE BASEMENT AREAS CAN BE IMPROVED BY PLACING 12 INCHES OF EARTH ON THE FLOOR OVER THE BASEMENT AND BY MOUNDING EARTH AGAINST THE EXPOSED BASEMENT WALLS. EARTH CAN ALSO BE ADDED TO THE ROOF PROVIDED THE SLOPE IS NOT TOO STEEP.

NOTE:
ADDITIONAL VENTILATION WILL BE REQUIRED.
SEE DESIGN OF AIR VENTILATION PUMP

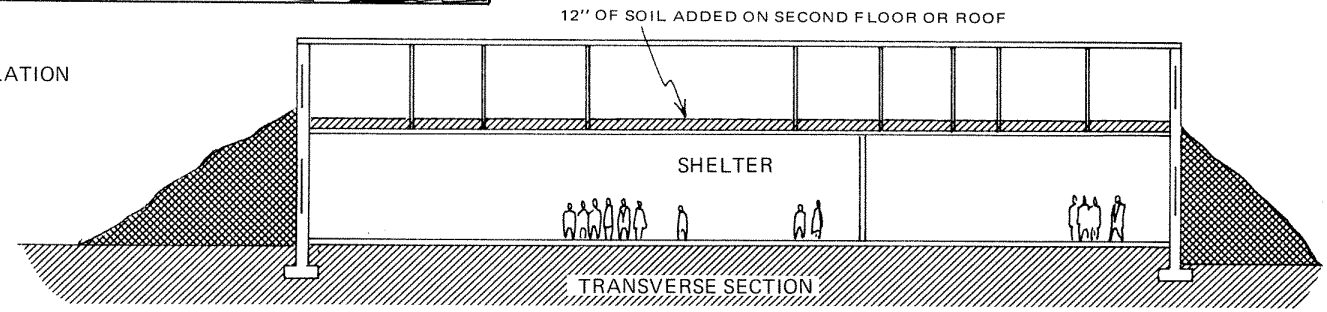


fallout protection in typical downtown row-type buildings

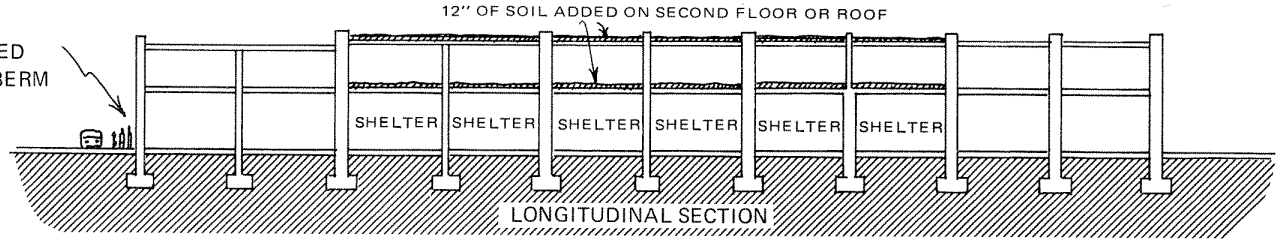


TWO-STORY BUILDINGS IN A ROW GROUPING (NO SEPARATION BETWEEN BUILDINGS) CAN HAVE THE EXISTING FALLOUT PROTECTION IMPROVED CONSIDERABLY IN THE "INTERIOR" SECTIONS BY PLACING EARTH AT THE FRONT AND REAR OF THE BUILDINGS AS WELL AS ON THE FLOOR OVER THE FIRST STORY AND/OR THE ROOF AS SHOWN IN THE SKETCHES. THE TWO BUILDINGS AT EITHER END OF THE ROW SHOULD NOT BE USED FOR SHELTER PURPOSES SINCE THEY PROVIDE SHIELDING FOR THE "INTERIOR" SECTIONS. GLASS FRONTS SHOULD BE PROTECTED FROM BREAKAGE WITH WOOD OR PLYWOOD PANELS.

NOTE:
ADDITIONAL VENTILATION WILL BE REQUIRED. SEE DESIGN OF AIR VENTILATION PUMP



END STORES CAN BE UPGRADED BY PROVIDING BERM ON END WALLS



mines, caves and tunnels...

. . . ARE ANOTHER RESOURCE FOR PROVIDING FALLOUT SHELTER. WHILE MOST OF THIS RESOURCE IS NOT LOCATED WITHIN OR NEXT TO MAJOR METROPOLITAN AREAS, IT IS CLOSE ENOUGH TO BE REACHED BY CITY DWELLERS. MINES, CAVES AND TUNNELS EXIST AND ARE IN COMMERCIAL USE IN SUCH PLACES AS KANSAS, MISSOURI, PENNSYLVANIA, VIRGINIA, UTAH, AND MONTANA. THE MAJOR PROBLEM IN GETTING THESE FACILITIES READY FOR PEOPLE TO USE THEM AS SHELTERS IS LIGHTING AND VENTILATION. TESTS CONDUCTED IN A LIMESTONE MINE NEAR DOWNTOWN KANSAS CITY INDICATED THAT EMERGENCY GENERATORS WOULD BE REQUIRED TO PROVIDE POWER FOR LIGHTING AND OPERATING THE VENTILATION EQUIPMENT IN THE MINE. A LOCAL CONTRACTOR WAS ABLE TO INSTALL LIGHT AND POWER OUTLETS AT DESIGNATED LOCATIONS IN THE MINE, IN ACCORDANCE WITH A PREDESIGNED LAYOUT IN A SHORT PERIOD OF TIME.

LARGE FANS (5 FT. DIAMETER, 60,000 CFM) ARE NEEDED AT THE ENTRANCES TO IMPROVE VENTILATION. THOSE MINES WITH DOUBLE ENTRANCES (TWO ALONGSIDE EACH OTHER AS OPPOSED TO THOSE WITH ENTRANCES AT OPPOSITE ENDS OF THE MINE) REQUIRE CONSTRUCTION OF SPECIAL DUCTING TO PREVENT AIR FROM "SHORT CIRCUITING" BETWEEN ENTRY WAYS. A DIVIDING WALL FORMED BY COVERING WOODEN FRAMES WITH POLYETHYLENE SHEETS, IS NEEDED TO SEPARATE THE TWO ADJOINING ENTRANCES. WITH THIS DUCTING ARRANGEMENT, THE EXHAUST FANS EXPEL AIR ON ONE SIDE OF THE DIVIDER WALL WHILE FRESH AIR IS DRAWN INTO THE MINE THROUGH THE ENTRANCE ON THE OTHER SIDE OF THE WALL.

SMALL MINES, IF HABITABLE, OR IF THEY CAN BE MADE HABITABLE IN A CRISIS, SHOULD BE INCLUDED IN CRP PLANNING IF THERE IS AN INSUFFICIENT NUMBER OF UPGRADABLE BUILDINGS TO OVERCOME THE SHELTER DEFICIT.

ANY MINES CONTAINING DANGEROUS GASES, HARMFUL BACTERIA, OR EXTENSIVE WETNESS, SHOULD NOT BE USED. ALTHOUGH CAVES AND TUNNELS CONSTITUTE ONLY A SMALL PERCENTAGE OF THE AVAILABLE UNDERGROUND SPACE, THEY TOO SHOULD BE INCLUDED IN THE PLANNING WHERE AVAILABLE AND THE SPACE IS NEEDED.

These are
PLANS FOR EXPEDIENT
FALLOUT SHELTERS

SAVE THESE PLANS—THEY MAY SAVE YOUR LIFE

● GENERAL INFORMATION

WITHOUT PROTECTION, UNTOLD NUMBERS OF AMERICANS WOULD DIE IN THE EVENT OF A NUCLEAR ATTACK. THE EXPEDIENT SHELTERS ILLUSTRATED IN THE FOLLOWING PAGES PROVIDE PROTECTION TO OCCUPANTS FROM THE DEADLY RADIATION OF RADIOACTIVE FALLOUT GENERATED BY A NUCLEAR DETONATION—THEIR USE CAN SAVE THE LIVES OF MILLIONS OF AMERICANS.

EVEN THOUGH THE ILLUSTRATED SHELTERS ARE VERY AUSTERE, THERE ARE A NUMBER OF THINGS THAT CAN BE DONE TO IMPROVE THEIR HABITABILITY AFTER THEY HAVE BEEN BUILT. WITH THE USE OF A LITTLE INGENUITY AND EFFORT, THE SHELTERS CAN BE MADE MORE COMFORTABLE. SOME OF THE THINGS THAT CAN BE DONE ARE:

- CONSTRUCT SEATS, HAMMOCKS, OR BUNKS.
- COVER THE FLOOR WITH BOARDS OR LOGS AND DRAPE SHEETS OR MATERIAL OVER THE EARTH WALLS.
- PROVIDE SAFE, DEPENDABLE LIGHT.

HUMANS MUST HAVE WATER AND FOOD TO LIVE. WHEN PEOPLE ARE TO LIVE IN A SHELTER FOR A WEEK OR TWO, SUFFICIENT FOOD AND SUPPLIES MUST BE PROVIDED FOR THE OCCUPANTS. THE MINIMUM NECESSITIES ARE:

● WATER—MINIMUM REQUIREMENTS (DEPENDENT UPON TEMPERATURE—LESS IN COLD WEATHER, MORE IN WARMER) WILL BE FROM ONE QUART TO ONE GALLON PER PERSON PER DAY. STORAGE CAN BE ACCOMPLISHED BY USING DISINFECTED METAL OR PLASTIC TRASH CANS OR BOXES LINED WITH STRONG POLYETHYLENE FILM OR STRONG PLASTIC BAGS. FOR PURITY, EIGHT DROPS (ONE TEASPOON) OF A 5-¼% CHLORINE SOLUTION (e.g., CLOROX) SHOULD BE MIXED INTO EACH 5 GALLONS OF WATER.

● FOOD—ALL FOOD SHOULD REQUIRE NO REFRIGERATION AND SHOULD BE BROUGHT TO THE SHELTER IN AIRTIGHT TINS OR BOTTLES. UNDER SHELTER CONDITIONS, PEOPLE WILL REQUIRE ABOUT HALF AS MUCH FOOD AS USUAL. FOODS SHOULD HAVE A HIGH NUTRITIONAL VALUE AND A MINIMAL AMOUNT OF BULK (i.e., CANNED MEATS – FRUITS – VEGETABLES, DRIED CEREALS, HARD CANDY, ETC.)

● SANITATION—A METAL CONTAINER WITH A TIGHT-FITTING LID FOR USE AS A TOILET WITH WHICH PLASTIC BAGS CAN BE USED. TOILET PAPER, SOAP, TOWELS, SANITARY ITEMS AND A QUANTITY OF STRONG PLASTIC BAGS WILL BE NEEDED.

● MEDICAL SUPPLIES—A WELL-STOCKED FIRST-AID KIT COMPARABLE TO WHAT IS USUALLY KEPT AT HOME. TAKE SPECIAL MEDICINES FOR INFANTS AND OTHERS AND A GOOD FIRST-AID HANDBOOK.

● CLOTHING AND BEDDING—SEVERAL CHANGES OF CLEAN CLOTHING, ESPECIALLY SOCKS AND UNDERCLOTHING—DEPENDENT UPON THE WEATHER, BLANKETS, PILLOWS AND SLEEPING BAGS MAY ALSO BE NEEDED.

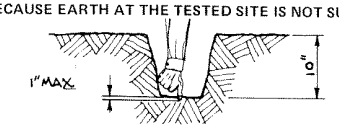
● PORTABLE RADIO—LASTLY, BUT HARDLY LEAST IMPORTANT, A PORTABLE RADIO WITH FRESH AND EXTRA BATTERIES, RADIO STATION BROADCASTS WILL ADVISE YOU WHEN IT IS SAFE TO ABANDON THE SHELTER AND ALSO PROVIDE YOU WITH OTHER IMPORTANT EMERGENCY INFORMATION.

EXPEDIENT FALLOUT SHELTER

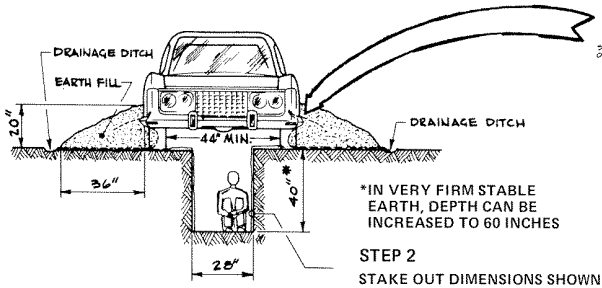
CAR—OVER—TRENCH

STEP 1

SELECT A LEVEL SITE. DIG A SMALL TEST HOLE ABOUT 10 INCHES DEEP. REMOVE ALL LOOSE EARTH FROM THE BOTTOM. PUSH THE POINT OF YOUR THUMB INTO THE UNDISTURBED EARTH IN THE BOTTOM OF HOLE. IF YOU CANNOT PUSH YOUR THUMB DEEPER THAN ONE INCH, THE EARTH SHOULD BE SUITABLE FOR THIS SHELTER. IF THUMB PENETRATES DEEPER THAN ONE INCH, MOVE TO ANOTHER SITE AND REPEAT TEST, BECAUSE EARTH AT THE TESTED SITE IS NOT SUITABLE.

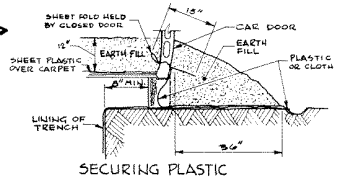


EARTH STABILITY TEST



TRENCH AND FILL DETAIL

*IN VERY FIRM STABLE EARTH, DEPTH CAN BE INCREASED TO 60 INCHES



SECURING PLASTIC

STEP 2

STAKE OUT DIMENSIONS SHOWN FOR TRENCH AND ENTRYWAY. NOTE THAT THE LENGTH OF TRENCH MUST BE 4 FEET LESS THAN THE OVERALL LENGTH OF THE CAR.

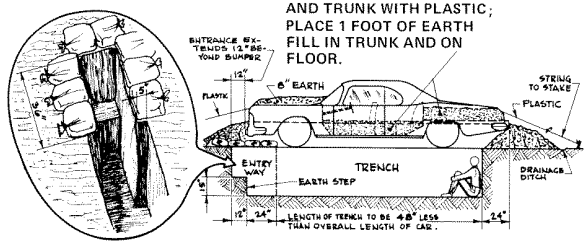
STEP 3

EXCAVATE TRENCH AND ENTRYWAY. AS TRENCH DEEPENS, REPEAT EARTH STABILITY TEST ON BOTTOM OF TRENCH. IF EARTH BECOMES "SOFTER" DO NOT DEEPEN TRENCH. PLACE EXCAVATED EARTH AWAY FROM TRENCH SO THAT CAR CAN BE DRIVEN OVER TRENCH.

STEP 4

LINE TRENCH WITH PLASTIC OR CLOTH. LINING SHOULD TOUCH FLOOR OF TRENCH AND EXTEND OUTWARD TO THE LIMIT OF EARTH FILL. AFTER TRENCH IS LINED, CAREFULLY DRIVE CAR OVER TRENCH TO THE POSITION SHOWN. HAVE SOMEONE GUIDE THE DRIVER OVER THE TRENCH.

STEP 5 REMOVE ALL SEATS (IF POSSIBLE). COVER FLOOR AND TRUNK WITH PLASTIC; PLACE 1 FOOT OF EARTH FILL IN TRUNK AND ON FLOOR.



TRENCH AND ENTRYWAY DETAIL

STEP 6

PLACE PLASTIC COVER OVER ENTRANCE AND VENTILATION OPENINGS. SECURE UNDER HOOD AND TRUNK LID.

STEP 8

BANK EARTH AROUND CAR TO HEIGHT OF 20 INCHES.

STEP 9

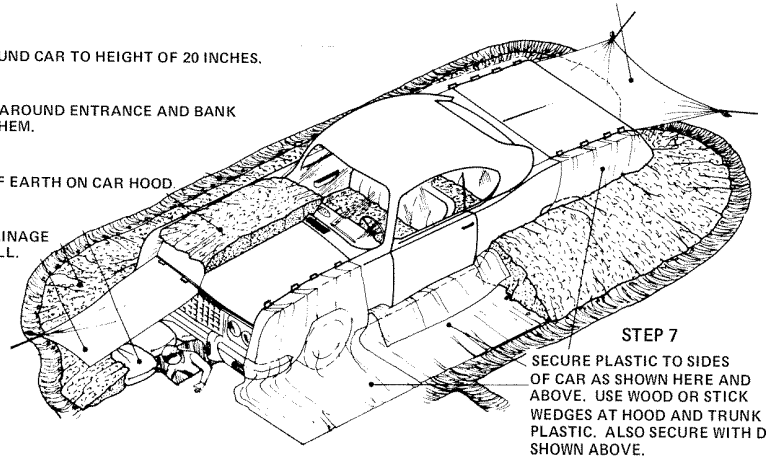
PLACE SANDBAGS AROUND ENTRANCE AND BANK EARTH AROUND THEM.

STEP 10

PLACE 8 INCHES OF EARTH ON CAR HOOD.

STEP 11

DIG SHALLOW DRAINAGE DITCH AROUND FILL.

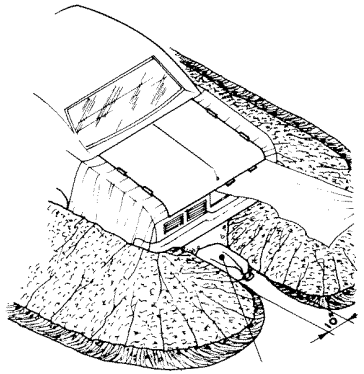


STEP 7

SECURE PLASTIC TO SIDES OF CAR AS SHOWN HERE AND ABOVE. USE WOOD OR STICK WEDGES AT HOOD AND TRUNK TO HOLD PLASTIC. ALSO SECURE WITH DOOR AS SHOWN ABOVE.

TOOLS AND MATERIALS

1. CAR; CAUTION: CAR MUST HAVE AT LEAST 44 INCHES OF WIDTH BETWEEN INSIDE WALLS OF TIRES.
2. PICK AND LONG-HANDLED SHOVEL.
3. PLASTIC SHEETING AND/OR CLOTH APPROX. 10—12 BEDSHEETS OR EQUIV. AREA OF OTHER MATERIALS WILL BE REQUIRED.
4. SANDBAGS, SACKS OR PILLOWCASES, 9 REQUIRED.
5. 50 FEET OF STRONG STRING OR CORD AND A KNIFE.
6. YARDSTICK OR MEASURING TAPE
7. WORK GLOVES FOR EACH WORKER.
8. STAKES, 4 REQUIRED.



SANDBAG TO REDUCE AIRFLOW WHEN REQUIRED DURING COLD WEATHER

GENERAL INFORMATION: READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING. IF A BIG STATION WAGON IS USED, SHELTER CAN BE PROVIDED FOR UP TO 6 PERSONS, LESS IF CAR IS SMALLER. THIS SHELTER CAN NOT BE BUILT IN AREAS WHERE GROUNDWATER OR ROCK IS CLOSE TO THE GROUND SURFACE. SHELTER CAN BE CONSTRUCTED BY TWO PERSONS WORKING A TOTAL OF ABOUT 12 HOURS EACH.

EXPEDIENT FALLOUT SHELTER
TILT—UP DOORS AND EARTH

STEP 1

LAY OUT THE TRENCH AND EARTH NOTCH WIDTHS, AS DIMENSIONED ON THE SECTION BELOW, ADJACENT TO A MASONRY WALL. DETERMINE THE LENGTH OF TRENCH AND NOTCH BY ALLOWING 3 FEET OF LENGTH PER PERSON TO BE SHELTERED.

STEP 2

EXCAVATE TRENCH AND EARTH NOTCH. PLACE EXCAVATED EARTH OUTSIDE SHELTER LIMITS FOR LATER USE.

STEP 3

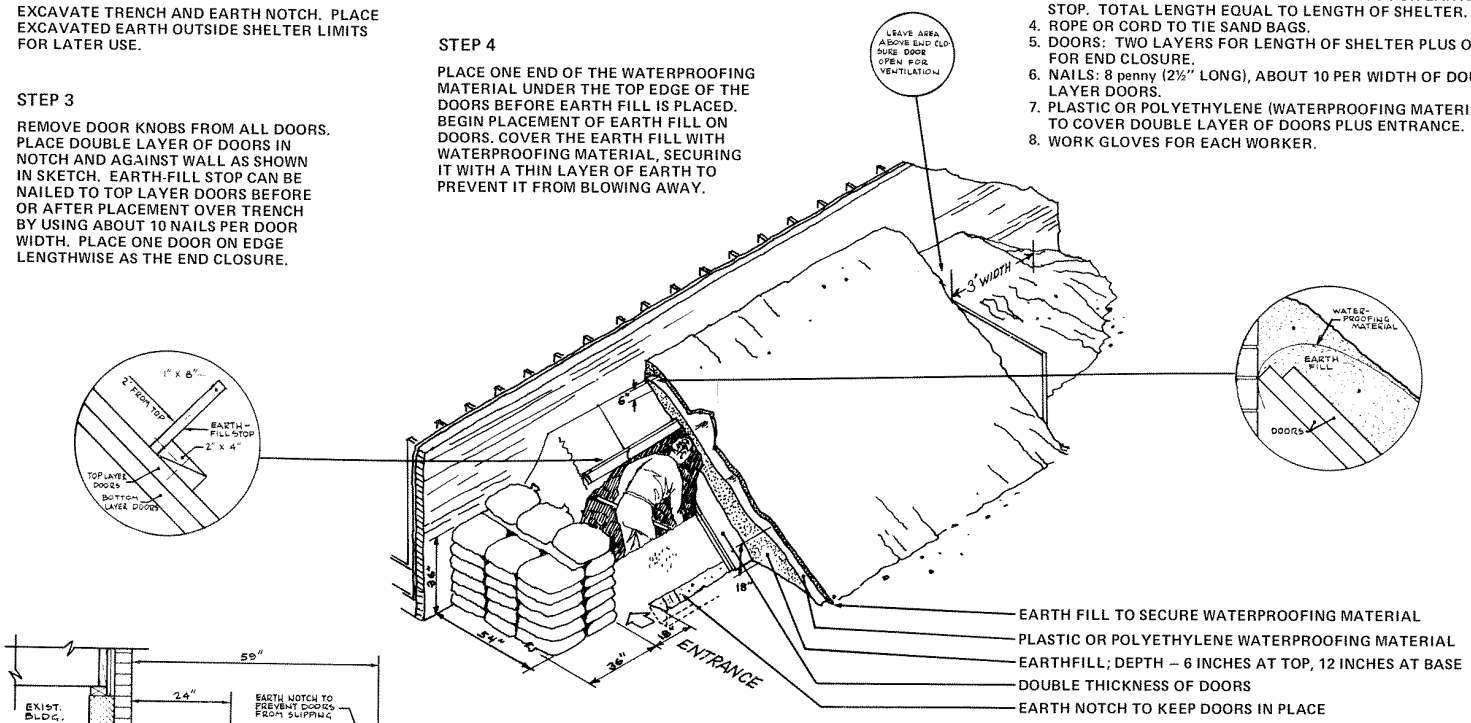
REMOVE DOOR KNOBS FROM ALL DOORS. PLACE DOUBLE LAYER OF DOORS IN NOTCH AND AGAINST WALL AS SHOWN IN SKETCH. EARTH-FILL STOP CAN BE NAILED TO TOP LAYER DOORS BEFORE OR AFTER PLACEMENT OVER TRENCH BY USING ABOUT 10 NAILS PER DOOR WIDTH. PLACE ONE DOOR ON EDGE LENGTHWISE AS THE END CLOSURE.

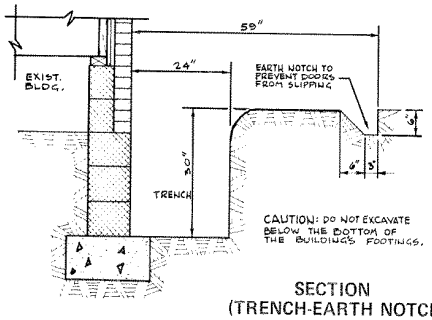
STEP 4

PLACE ONE END OF THE WATERPROOFING MATERIAL UNDER THE TOP EDGE OF THE DOORS BEFORE EARTH FILL IS PLACED. BEGIN PLACEMENT OF EARTH FILL ON DOORS. COVER THE EARTH FILL WITH WATERPROOFING MATERIAL, SECURING IT WITH A THIN LAYER OF EARTH TO PREVENT IT FROM BLOWING AWAY.

TOOLS AND MATERIALS

1. TOOLS: PICK, SHOVEL, HAMMER, SAW, SCREWDRIVER, KNIFE, YARDSTICK.
2. SANDBAGS OR PILLOWCASES – AT LEAST 39.
3. LUMBER: 1" X 8" PIECES AND 2" X 4" PIECES FOR EARTH-FILL STOP. TOTAL LENGTH EQUAL TO LENGTH OF SHELTER.
4. ROPE OR CORD TO TIE SAND BAGS.
5. DOORS: TWO LAYERS FOR LENGTH OF SHELTER PLUS ONE FOR END CLOSURE.
6. NAILS: 8 penny (2½" LONG), ABOUT 10 PER WIDTH OF DOUBLE LAYER DOORS.
7. PLASTIC OR POLYETHYLENE (WATERPROOFING MATERIAL) TO COVER DOUBLE LAYER OF DOORS PLUS ENTRANCE.
8. WORK GLOVES FOR EACH WORKER.





SECTION
(TRENCH-EARTH NOTCH)

STEP 5

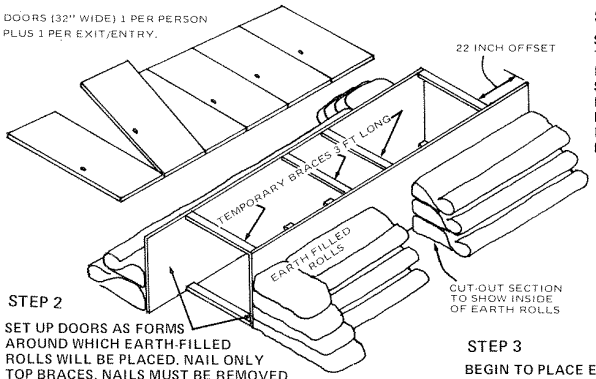
CONSTRUCT ENTRANCE – FILL "SANDBAG PILLOW-CASES" WITH EARTH TAKEN FROM THE TRENCH AND STACK TO DIMENSIONS SHOWN AFTER DOORS ARE IN PLACE. PLASTIC OR POLYETHYLENE (WATERPROOFING MATERIAL) ENTRANCE COVER SHOULD BE IN PLACE BEFORE EARTH FILL IS PUT ON THE DOORS.

GENERAL INFORMATION

READ AND STUDY ALL INSTRUCTIONS BEFORE STARTING TO BUILD. THE LOCATION SELECTED FOR THIS SHELTER SHOULD BE LEVEL OR GENTLY SLOPING DOWN AND AWAY FROM THE MASONRY WALL. A FOUR-PERSON SHELTER CAN BE CONSTRUCTED BY FOUR PEOPLE WORKING A TOTAL OF 12 HOURS EACH.

EXPEDIENT FALLOUT SHELTER

ABOVE-GROUND DOOR-COVERED SHELTER



STEP 1

SELECT A SHELTER LOCATION WHERE THERE IS LITTLE OR NO CHANCE OF RAINWATER PONDING ON THE GROUND SURFACE. STAKE OUT SHELTER, REMOVE DOOR KNOBS. ALLOW 1 DOOR FOR EACH PERSON PLUS 1 DOOR FOR EACH ENTRY/EXIT AT BOTH ENDS. LIMIT IS 8 PERSONS PER SHELTER.

STEP 2

SET UP DOORS AS FORMS AROUND WHICH EARTH-FILLED ROLLS WILL BE PLACED. NAIL ONLY TOP BRACES. NAILS MUST BE REMOVED LATER. BRACE ALL CORNERS, CENTER, TOP AND BOTTOM OF EACH DOOR.

STEP 3

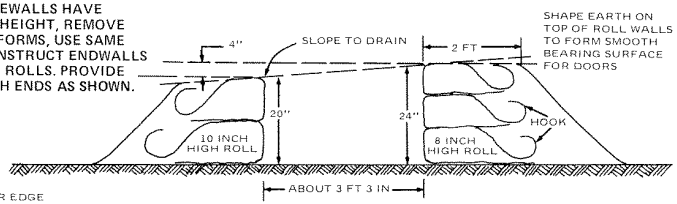
BEGIN TO PLACE EARTH-FILLED ROLLS AGAINST DOOR FORMS. TO FORM EARTH ROLLS, SEE EARTH-FILLED ROLL DETAIL BOTTOM OF PAGE.

STEP 4

MOUND EARTH AGAINST THE EARTH-FILLED ROLLS AS SHOWN. CONTINUE PLACING EARTH AND SHEETS TO FORM EARTH-FILLED ROLLS.

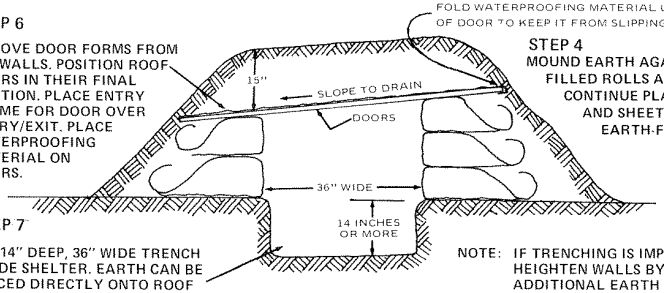
STEP 5

KEEP HEIGHT OF EARTH ABOUT EQUAL ON BOTH SIDEWALLS AS ROLLS ARE FORMED. AFTER SIDEWALLS HAVE REACHED PLANNED HEIGHT, REMOVE BRACES AND DOOR FORMS, USE SAME DOOR FORMS TO CONSTRUCT ENDWALLS WITH EARTH FILLED ROLLS. PROVIDE EXIT/ENTRY AT BOTH ENDS AS SHOWN.



STEP 6

REMOVE DOOR FORMS FROM ENDWALLS. POSITION ROOF DOORS IN THEIR FINAL POSITION. PLACE ENTRY FRAME FOR DOOR OVER ENTRY/EXIT. PLACE WATERPROOFING MATERIAL ON DOORS.



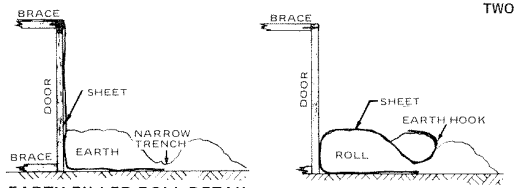
STEP 7

DIG 14" DEEP, 36" WIDE TRENCH INSIDE SHELTER. EARTH CAN BE PLACED DIRECTLY ONTO ROOF DOORS. TRENCH CAN BE MADE UP TO 3 FEET DEEP IF CONDITIONS PERMIT.

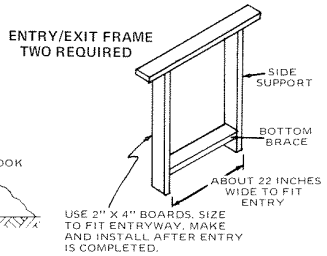
NOTE: IF TRENCHING IS IMPRACTICAL HEIGHTEN WALLS BY USING ADDITIONAL EARTH ROLLS.

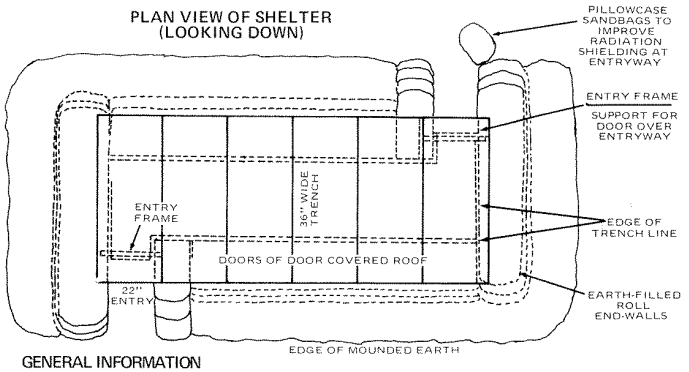
STEP 8

PLACE 15 INCHES OF EARTH ON TOP OF SHELTER. IN HOT WEATHER CONSTRUCT A SHELTER VENTILATION AIR PUMP. SEE AIR PUMP DETAILS ON LAST PAGE.



EARTH-FILLED ROLL DETAIL

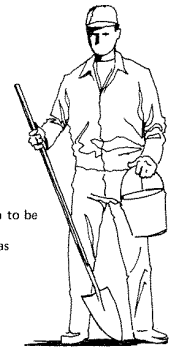




1. PLACE 2 FT OF SHEET ON GROUND AND TEMPORARILY DRAPE REMAINDER OF SHEET ON DOOR.
2. PLACE EARTH ON SHEET – SHAPE AS SHOWN.
3. FOLD SHEET OVER SHAPED EARTH.
4. PLACE EARTH ONTO SHEET AT NARROW TRENCH.
5. FOLD SHEET TO FORM EARTH HOOK. HOOK WILL ANCHOR SHEET.
6. REPEAT TO FORM NEXT EARTH-FILLED ROLL.

TOOLS AND MATERIALS

1. Doors as indicated.
2. Pick or Mattock and Shovel.
3. Two Buckets or Large Cans to Carry Earth.
4. Tape Measure, Yardstick or Ruler.
5. Saw, Axe or Hatchet.
6. Hammer and at least 20 Nails – 2½" long.
7. At least 4 Double Bed Sheets for Each Person to be Sheltered.
8. Pillowcases and Rainproofing Materials such as Plastic or Polyethylene.
9. Work Gloves for Each Worker.
10. Lumber for use as Temporary Braces and for Entry/Exit Frames.



GENERAL INFORMATION

THE ABOVE-GROUND DOOR-COVERED SHELTER IS DESIGNED FOR AREAS WHERE BELOW-GROUND SHELTERS ARE IMPRACTICAL BECAUSE THE GROUNDWATER TABLE OR BEDROCK IS CLOSE TO THE GROUND SURFACE. THIS SHELTER CAN BE BUILT BY FOUR PERSONS WORKING A TOTAL OF 12 HOURS EACH.

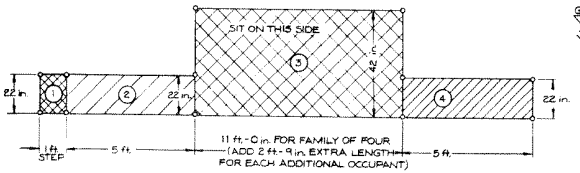
READ AND STUDY ALL INSTRUCTIONS BEFORE STARTING TO BUILD. IF DOOR WIDTHS MEASURE LESS THAN 32 INCHES, USE A COMBINATION OF DOORS TO PROVIDE A MINIMUM OF 32 INCHES OF DOOR-WIDTH PER PERSON.

EXPEDIENT FALLOUT SHELTER

LOG—COVERED TRENCH SHELTER

STEP 1

CLEAR AREA OF BRUSH AND TALL GRASS. LAYOUT SHELTER AS SHOWN BELOW.



LEGEND:

○ = WOOD OR METAL STAKE

① ENTRANCE STEP 2 ft.-6 in. DEEP

② ENTRANCE TRENCH 4 ft.-0 in. DEEP

③ SHELTER ROOM 4 ft.-6 in. DEEP

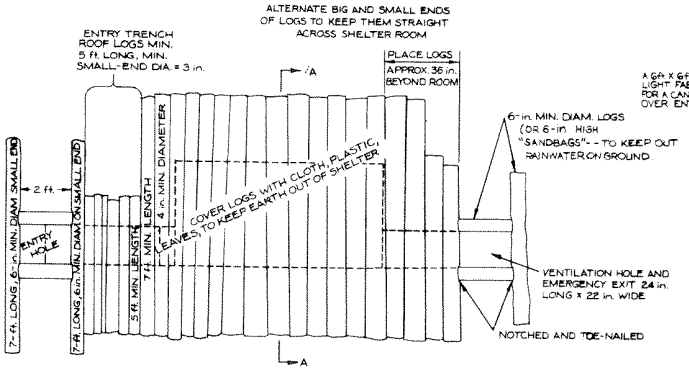
④ VENTILATION TRENCH 24 in. DEEP

STEP 2

BEGIN EXCAVATING THE TRENCH. PLACE EXCAVATED EARTH AT LEAST 3 FEET BEYOND THE EDGE OF TRENCH SO THAT THE ROOF LOGS CAN LATER BE PLACED OVER THE TRENCH.

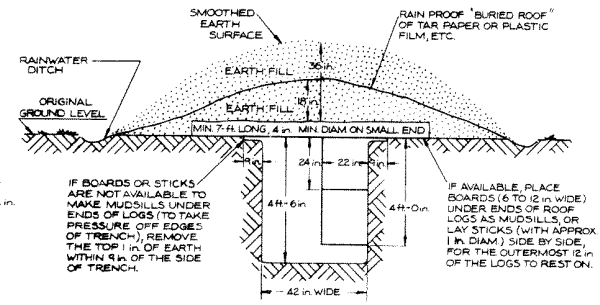
STEP 3

AS THE TRENCH EXCAVATION PROGRESSES, SOME WORKERS SHOULD BEGIN CUTTING LOGS TO THE LENGTH AND SIZE AS SHOWN ON THE ILLUSTRATIONS.



ROOF LOGS = MINIMUM 7-ft. LONG, 4-in. MINIMUM DIAMETER ON SMALL END LAID ABOUT 2 ft. PAST EACH END OF SHELTER ROOM.

PLAN VIEW OF TOP OF SHELTER — SHOWING PLACEMENT OF LOGS FOR ROOF-EARTH FILL NOT SHOWN



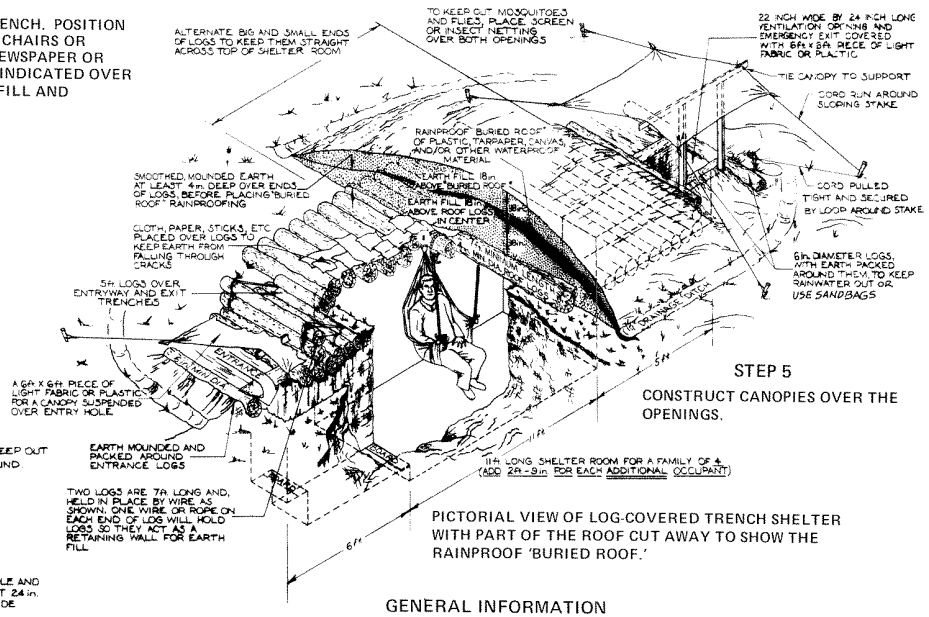
SECTION A—A

STEP 4

PLACE LOGS OVER TRENCH. POSITION TIES FOR BED SHEET CHAIRS OR HAMMOCKS. PLACE NEWSPAPER OR OTHER MATERIAL AS INDICATED OVER LOGS. PLACE EARTH FILL AND BURIED ROOF.

TOOLS AND MATERIALS

1. SAW AND/OR AXE.
2. PICK OR MATTOCK.
3. LONG-HANDLED SHOVELS.
4. RAINPROOFING MATERIAL (PLASTIC OR POLYETHYLENE) 25 SQUARE YARDS. FOR EACH PERSON ABOVE 4, ADD 2 SQ YDS.
5. 50 FEET OF STRONG STRING OR CORD AND A KNIFE.
6. TAPE MEASURE OR YARD STICK.
7. AT LEAST 8 PILLOW CASES AND/OR SANDBAGS.
8. WORK GLOVES.
9. BED SHEETS FOR USE AS "CHAIRS" OR "HAMMOCKS" — 1 PER PERSON PLUS AT LEAST 15 FEET OF STRONG ROPE OR CORD PER BED SHEET.
10. 15 POUNDS OF NEWSPAPERS TO PLACE OVER ROOF LOGS TO KEEP EARTH FROM FALLING THROUGH CRACKS BETWEEN LOGS.



STEP 5

CONSTRUCT CANOPIES OVER THE OPENINGS.

PICTORIAL VIEW OF LOG-COVERED TRENCH SHELTER WITH PART OF THE ROOF CUT AWAY TO SHOW THE RAINPROOF 'BURIED ROOF.'

GENERAL INFORMATION

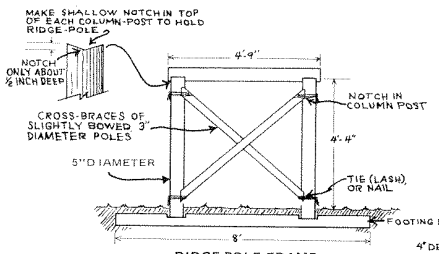
THIS SHELTER IS DESIGNED FOR AREAS WHERE THE DEPTH BELOW THE GROUND SURFACE TO HARD ROCK OR GROUNDWATER IS BELOW THE BOTTOM OF THE TRENCH. ALSO, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH SIDEWALLS WILL NOT CAVE IN. IN ADDITION, ADEQUATE SMALL TREES THAT CAN BE CUT FOR LOGS MUST BE AVAILABLE IN THE IMMEDIATE AREA. THE SHELTER (4-PERSON CAPACITY) CAN BE BUILT BY 4 PEOPLE WORKING A TOTAL OF 18 HOURS EACH. AFTER INITIAL COMPLETION, THE SHELTER CAN BE ENLARGED TO A WIDTH OF 5 FT.—6 IN. AND DEEPENED TO 6 FT. HOWEVER, 9—FT LOGS MUST BE USED IN PLACE OF 7—FT LOGS AND THE BURIED ROOF MUST BE LARGE ENOUGH TO COVER THE WIDENED SHELTER DURING THE INITIAL CONSTRUCTION.

EXPEDIENT FALLOUT SHELTER

ABOVE—GROUND RIDGE—POLE

STEP 1

CONSTRUCT RIDGE POLE FRAME



RIDGE POLE FRAME

SIDE VIEW SHOWING CROSS-BRACES OF COLUMN-POSTS (IF LARGE NAILS ARE AVAILABLE, SIMPLY NAIL TWO SIMILARLY SLOPING CROSS-BRACES ON OPPOSITE SIDES OF THE COLUMN-POSTS.) FOR SHELTERS WITH THREE OR MORE COLUMN-POSTS USE ONLY ONE BRACE BETWEEN EACH PAIR OF POSTS AND SLOPE BRACES ALTERNATELY IN DIFFERENT DIRECTION.

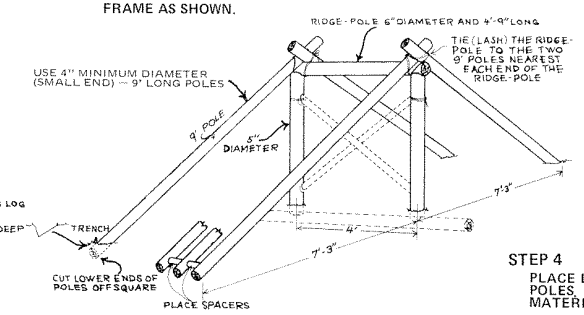
5-PERSON SHELTER IS ILLUSTRATED — FOR EACH PERSON ABOVE 5, MAKE RIDGE POLE 1 FT. LONGER; FOR 6 TO 8 PERSONS, USE 3 COLUMN POSTS — 10 to 14 PERSONS, USE 4 COLUMNS.

AVOID CARRYING POLES — DRAG THEM

SUGGESTED WAY OF HAULING POLES

STEP 2

DIG 4" DEEP "V" TRENCH IN EARTH AND PLACE 9' ROOF POLES IN TRENCH AND ON RIDGE-POLE FRAME AS SHOWN.

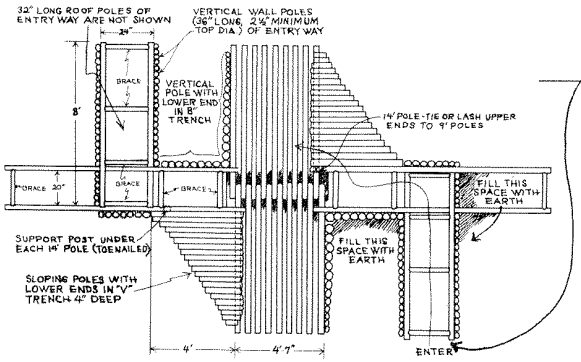


TOOLS AND MATERIALS

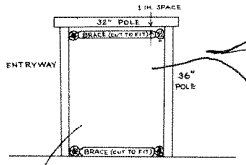
1. SAW TO CUT GREEN POLES (BOW OR CROSSCUT SAW PREFERRED), AND AN AXE.
2. SHOVEL (ONE SHOVEL FOR EACH TWO WORKERS).
3. LARGE BUCKETS, CANS, OR POTS WITH BAIL HANDLES TO CARRY EARTH.
4. KNIFE.
5. THREE DOUBLE-BED SHEETS FOR THE ILLUSTRATED 5-PERSON SHELTER, OR AN EQUIVALENT AREA OF EQUALLY STRONG FABRIC OR PLASTIC. ONE ADDITIONAL SHEET FOR EACH ADDITIONAL 2 OCCUPANTS. IF NOT AVAILABLE, USE STICKS AND SMALL POLES PLACED ACROSS THE 9-FT SIDE POLES AND COVER WITH GRASS OR LEAVES TO FILL IN THE SPACES BETWEEN THE POLES.
6. HAMMER AND AT LEAST 80 NAILS (3 IN. OR LONGER); OR AT LEAST 200 FT. OF ROPE OR STRONG WIRE, OR TWO ADDITIONAL BED SHEETS (OR OTHER FABRIC EQUALLY STRONG) FOR EACH PERSON TO BE SHELTERED TO MAKE INTO FOOT-WIDE STRIPS TO SERVE AS "ROPE" WHEN TWISTED.
7. AT LEAST 2 SQUARE YARDS PER PERSON OF RAIN-PROOFING MATERIAL (SHOWER CURTAINS, PLASTIC TABLE CLOTHS, PLASTIC MATTRESS COVERS, ETC.) — ESSENTIAL IN RAINY COLD WEATHER.
8. GLOVES TO PREVENT INJURY AND BLISTERS TO HANDS.

STEP 3

CONSTRUCT ENTRYWAYS



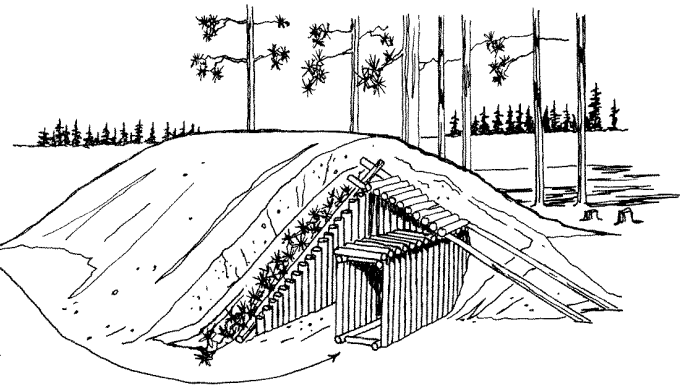
VIEW LOOKING DOWN ON SHELTER WITH ALL POLES IN PLACE EXCEPT THE ROOF POLES OF THE TWO ENTRYWAYS.

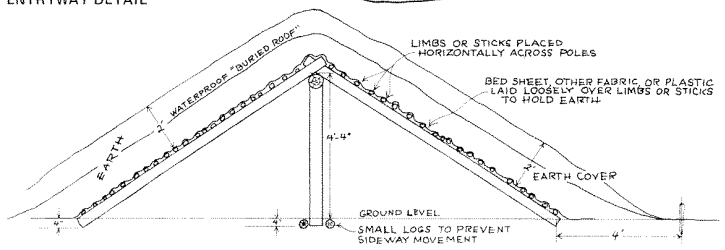


ENTRYWAY DETAIL

STEP 4

PLACE LIMBS OR STICKS AND BEDSHEETS ACROSS ROOF POLES. PLACE EARTH FILL AND WATERPROOFING MATERIALS AS ILLUSTRATED.





SECTION THRU COMPLETED SHELTER

GENERAL INFORMATION

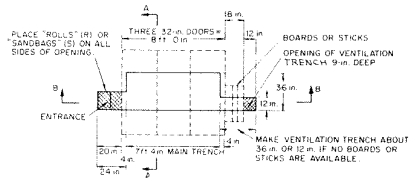
THIS SHELTER IS DESIGNED FOR AREAS WHERE THERE IS AN ABUNDANCE OF SMALL TREES AND BELOWGROUND SHELTERS ARE IMPRACTICAL. THE SHELTER (5-PERSON CAPACITY) CAN BE BUILT BY 5 PEOPLE WORKING A TOTAL OF 24 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING.

EXPEDIENT FALLOUT SHELTER

DOOR—COVERED TRENCH SHELTER

STEP 1

SELECT A REASONABLY LEVEL SITE. LAY OUT THE SHELTER AS ILLUSTRATED BY LAYING DOORS SIDE BY SIDE TO DETERMINE THE SHELTER LENGTH. DOOR KNOBS SHOULD BE REMOVED.



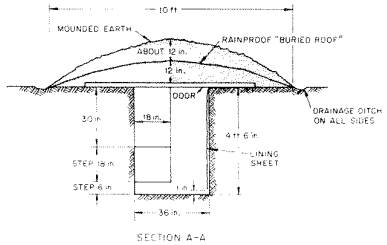
LAYOUT FOR 3-PERSON CAPACITY

STEP 2

EXCAVATE THE SHELTER TRENCH, ENTRYWAY AND VENTILATION TRENCH AS SHOWN. PILE THE EXCAVATED EARTH AT LEAST 3 FEET BEYOND THE TRENCH LIMITS SO THAT IT WILL NOT INTERFERE WITH THE LATER PLACEMENT OF DOORS OVER THE TRENCH.

STEP 3

IF THERE ARE ADEQUATE SHEETS OR FABRIC AVAILABLE, LINE THE TRENCH WALLS WITH THEM. THEN PLACE DOORS OVER THE TRENCH.



SECTION A–A

STEP 4

IN ORDER TO HOLD IN PLACE AN ADEQUATE AMOUNT OF EARTH ON TOP OF THE DOORS, CONSTRUCT EARTH "ROLLS" AROUND THE ENTRYWAY AS SHOWN. THE "ROLLS" WILL KEEP THE EARTH FILL IN PLACE. SEE HOW TO MAKE AN EARTH ROLL.

STEP 5

PLACE EARTH FILL AND THE WATERPROOFING MATERIAL OVER THE DOORS. PLACE SANDBAGS AS SHOWN ON THE ILLUSTRATIONS.

STEP 6

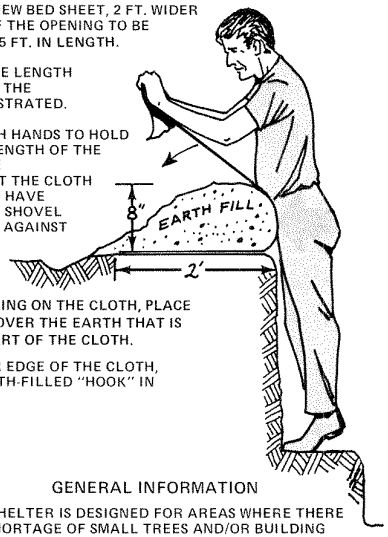
CONSTRUCT SHALLOW DRAINAGE DITCHES ON ALL SIDES AND PLACE CANOPIES OVER THE OPENINGS.

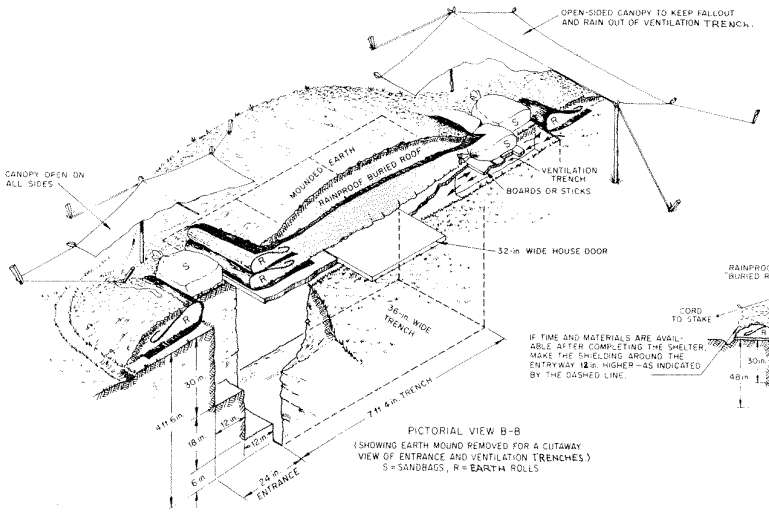
TOOLS AND MATERIALS

1. DOORS (INTERIOR SOLID OR HOLLOW-CORE) – 1 FULL SIZE (32" MINIMUM WIDTH) FOR EACH PERSON. IF DOORS MEASURE LESS THAN 32" IN WIDTH, USE A COMBINATION OF DOORS TO PROVIDE THE MINIMUM WIDTH PER PERSON.
2. PICK AND/OR MATTOCK.
3. LONG-HANDLED SHOVELS.
4. RAINPROOFING MATERIAL – (e.g., PLASTIC SHEETING, CANVAS, PLASTIC TABLE COVERS, ETC.) AT LEAST 25 SQUARE FEET PER PERSON PLUS 2 PIECES ABOUT 6 FT. by 6 FT. FOR USE AS CANOPIES.
5. ONE BEDSHEET OR THE EQUIVALENT OF 50 SQ. FT. OF CLOTH OR PLASTIC PER PERSON TO LINE TRENCH AND MAKE EARTH-FILLED ROLLS.
6. TWO PILLOWCASES PER PERSON TO USE AS SANDBAGS.
7. STRING OR CORD TO TIE CANOPIES AND SANDBAGS.
8. KNIFE.
9. SEVERAL BOARDS ABOUT 3 FEET LONG.
10. MEASURING TAPE AND/OR RULER.
11. WORK GLOVES FOR EACH WORKER.

HOW TO MAKE AN EARTH ROLL

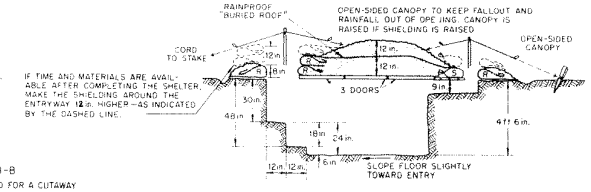
1. SELECT A PIECE OF CLOTH OR PLASTIC AT LEAST AS STRONG AS A NEW BED SHEET, 2 FT. WIDER THAN THE SIDE OF THE OPENING TO BE PROTECTED, AND 5 FT. IN LENGTH.
2. PLACE 2 FT. OF THE LENGTH OF THE CLOTH ON THE GROUND, AS ILLUSTRATED.
3. WHILE USING BOTH HANDS TO HOLD UP 3 FT. OF THE LENGTH OF THE CLOTH AND WHILE PRESSING AGAINST THE CLOTH WITH YOUR BODY, HAVE ANOTHER PERSON SHOVEL EARTH ONTO AND AGAINST THE CLOTH.
4. WHILE STILL PULLING ON THE CLOTH, PLACE THE UPPER PART OVER THE EARTH THAT IS ON THE LOWER PART OF THE CLOTH.
5. COVER THE UPPER EDGE OF THE CLOTH, FORMING AN EARTH-FILLED "HOOK" IN THIS EDGE.





PICTORIAL VIEW B–B

(SHOWING EARTH MOUND REMOVED FOR A CUTAWAY VIEW OF ENTRANCE AND VENTILATION TRENCHES.)
S = SANDBAGS, R = EARTH ROLLS



SECTION B–B

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THERE IS A SHORTAGE OF SMALL TREES AND/OR BUILDING MATERIALS. THE DEPTH TO GROUND WATER AND ROCK MUST ALSO BE BELOW THE BOTTOM OF THE TRENCH. IN ADDITION, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH WALLS WILL NOT COLLAPSE. THE SHELTER (3-PERSON CAPACITY) CAN BE CONSTRUCTED BY 3 PEOPLE WORKING AN APPROXIMATE TOTAL OF 18 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING TO BUILD.

EXPEDIENT FALLOUT SHELTER

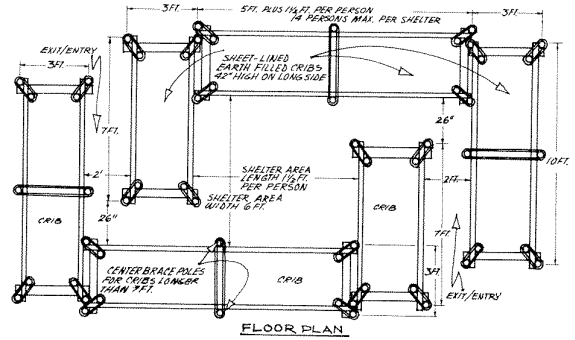
CRIB—WALLED SHELTER—ABOVE GROUND

TOOLS & MATERIALS
(FOR 5-PERSON CAPACITY)

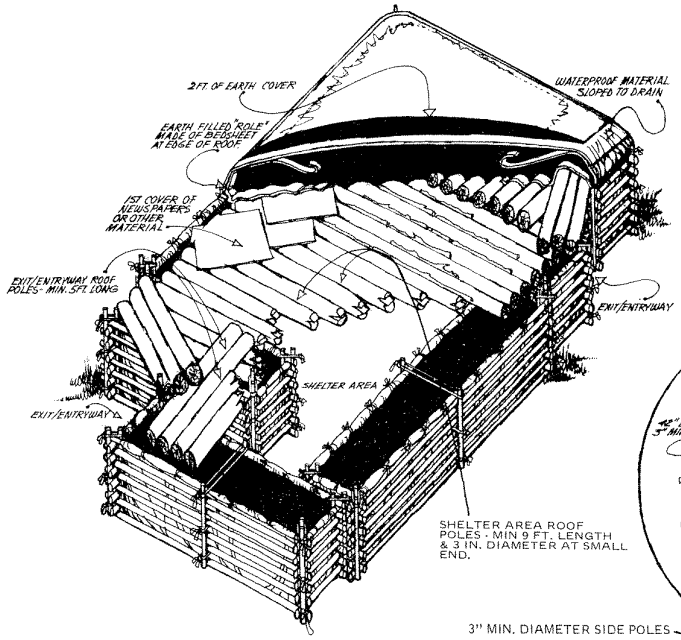
1. SAW AND/OR AXE TO CUT TREE POLES.
2. SHOVELS (ONE FOR EACH TWO WORKERS).
3. LARGE CANS, BUCKETS AND/OR POTS WITH BAIL HANDLES TO CARRY EARTH.
4. KNIFE OR SCISSORS.
5. AT LEAST 300 FT OF STRONG WIRE OR 300 FT OF ROPE, OR 8 DOUBLE-BED SHEETS (TO TEAR INTO 1-FOOT-WIDE STRIPS, TO SERVE AS ROPE WHEN SLIGHTLY TWISTED). FOR EACH ADDITIONAL PERSON ABOVE 5, 20 FT OF ROPE, OR HALF A DOUBLE-BED SHEET IS NEEDED.
6. AT LEAST 30 SQUARE YARDS, PLUS 2 SQUARE YARDS PER PERSON ABOVE 5, OF RAINPROOF ROOF MATERIALS (SHOWER CURTAINS, PLASTIC TABLE CLOTHS, PLASTIC MATTRESS COVERS, ETC.).
7. 15 DOUBLE-BED SHEETS FOR AN EQUAL AREA OF CLOTH OR PLASTIC AT LEAST AS STRONG AS BED SHEETS. 2 ADDITIONAL SHEETS PER PERSON ABOVE 5.
8. GLOVES TO PROTECT HANDS FROM INJURY AND BLISTERS, FOR EACH WORKER
9. 15 POUNDS OF NEWSPAPER FOR ROOF COVER.

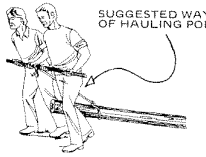
STEP 1

SELECT A SHELTER LOCATION WHERE THERE IS LITTLE OR NO CHANCE OF THE GROUND BEING COVERED WITH WATER IF IT RAINS HARD. STAKE OUT THE ENTIRE SHELTER, LOCATING THE 6 REQUIRED CRIBS.

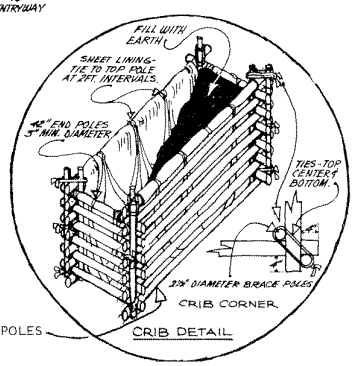


FLOOR PLAN





SUGGESTED WAY OF HAULING POLES



CRIB DETAIL

STEP 2

CUT POLES HAVING TOPS WITH DIAMETERS (NOT INCLUDING BARK) NO SMALLER THAN THE DIAMETERS SPECIFIED ON THE ILLUSTRATION FOR EACH TYPE POLE.

STEP 3

SORT THE POLES BY SIZE (LENGTH AND DIAMETER) AND LAY ALL POLES OF EACH SIZE TOGETHER NEAR THE SHELTER SITE. CUT OFF ALL LIMBS SO THAT POLES ARE SMOOTH. DETERMINE IF ENOUGH LONG-SINGLE POLES CAN BE OBTAINED FOR THE SIDE-POLES OF THE 2 CRIBS ON THE LONG SIDES OF THE SHELTER. USUALLY, IF THE SHELTER IS TO BE BUILT FOR MORE THAN 7 PERSONS (15½-FOOT POLES REQUIRED), IT IS BETTER TO USE 2 CRIBS PLACED END-TO-END INSTEAD OF ONE CRIB THAT REQUIRES THE LONGER POLES.

STEP 4

A. PLACE TWO 3½ FT END-POLES ON THE GROUND AND PUT 2 OF THE THICKER SIDE-POLES ON TOP OF THE 2 END POLES SO THAT THE ENDS OF ALL 4 POLES STICK OUT 4" BEYOND WHERE THEY CROSS.
B. STACK PAIRS OF END-POLES AND SIDE-POLES TO MAKE THE CRIB (WHILE KEEPING THE CRIB VERTICAL) TO A HEIGHT OF 42". TO KEEP THE TOP POLES OF THE CRIB LEVEL, ALTERNATE THE DIRECTION OF THE BIG AND SMALL ENDS OF THE POLES.
C. PLACE A PAIR OF VERTICAL CORNER BRACE-POLES IN EACH OF THE 4 CORNERS OF THE CRIB. BRACE-POLES SHOULD BE CUT OFF AT THE SAME HEIGHT AS THE UPPER SIDES OF THE UPPER-MOST HORIZONTAL POLES TO WHICH THEY WILL BE TIED.
D. TIE THE PAIR OF BRACE-POLES TOGETHER (AT BOTTOM, MIDDLE, AND TOP) USING 3-FT LENGTHS OF WIRE, ROPE, OR TWISTED 1-FT-WIDE STRIPS OF CLOTH.
E. IF THE CRIB IS MORE THAN 7 FT LONG, PLACE A PAIR OF CENTER BRACE-POLES IN POSITION, ONE AGAINST THE OUTSIDE OF EACH LONG CRIB. TIE THE PAIR OF BRACE-POLES IN POSITION, ONE AGAINST THE OUTSIDE OF EACH LONG CRIB. TIE THE PAIR OF BRACE-POLES TOGETHER PERMANENTLY, JUST ABOVE THE GROUND. TEMPORARILY TIE EACH OF THEM TO THE UPPERMOST SIDE-POLE.
F. LINE THE CRIB WITH CLOTH (OR PLASTIC FILM), MAKING SURE AT LEAST A FEW INCHES OF LINING HANGS OVER THE UPPERMOST POLES. TIE THE UPPER EDGE OF THE LINING TO THE UPPERMOST WALL-POLE EVERY 2 FT., AFTER FIRST CUTTING A SMALL HOLE THROUGH WHICH TO THREAD THE TIE-STRING OR A 4"-WIDE TIE-STRIP OF CLOTH.
G. PERMANENTLY TIE TOGETHER THE CENTER BRACE-POLES USING HORIZONTAL TIES AT CENTER AND TOP.
H. FILL THE LINED CRIB WITH EARTH FROM WHICH ALL GRASS, ROOTS, ETC., HAVE BEEN REMOVED.

STEP 5

PUT THE 9-FT ROOF-POLES IN PLACE. PLACE THE STRONGEST POLES AT THE ENTRYWAYS, THEN PLACE THE SHORTER (5 TO 6 FT) POLES OVER THE ENTRYWAYS.

STEP 6

TO KEEP EARTH FROM FALLING BETWEEN THE CRACKS OF THE ROOF, PUT STICKS IN THE LARGER CRACKS AND COVER THE ROOF WITH TWO OR MORE THICKNESSES OF NEWSPAPER OR OTHER MATERIAL.

STEP 7

PUT EARTH COVER ON THE ROOF TO THE DEPTHS SHOWN ON THE ILLUSTRATIONS. BE SURE TO SLOPE THE MOUNDED EARTH SURFACE DOWNWARD TOWARD THE EDGES SO THE ROOF WILL SHED WATER. USE BEDSHEETS TO FORM "EARTH ROLLS" AT THE ROOF EDGE. THE SHEETS WILL SERVE AS FORMS TO HOLD EARTH IN PLACE. CLUMPS OF TURF CAN BE SUBSTITUTED AT ROOF EDGES FOR THE BEDSHEETS. PLACE THE WATER PROOFING MATERIAL BEFORE PLACING THE FINAL 6 INCHES OF EARTH COVER.

STEP 8

IF THE WEATHER IS HOT, BUILD AND INSTALL A SHELTER VENTILATING PUMP. SEE SEPARATE INSTRUCTIONS ON VENTILATION FOR EXPEDIENT SHELTERS.

GENERAL INFORMATION

THIS SHELTER CAN BE CONSTRUCTED IN AREAS WHERE THERE IS AN ABUNDANCE OF SMALL TREES. THE APPROXIMATE AMOUNT OF TIME AND EFFORT REQUIRED TO BUILD THIS SHELTER (CAP. FOR 5) IS 5 PERSONS WORKING A TOTAL OF 24 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE STARTING TO BUILD.

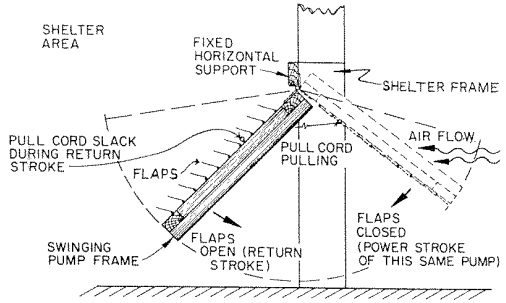
EXPEDIENT FALLOUT SHELTER

AIR VENTILATION PUMP—EMERGENCY LAMP

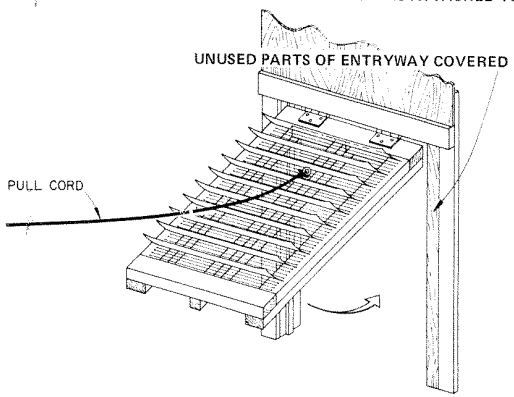
ALL EXPEDIENT SHELTERS ARE DESIGNED TO PROVIDE FOR SOME NATURAL VENTILATION. IN VERY HOT WEATHER, ADDITIONAL VENTILATION MAY BE REQUIRED TO PROVIDE A LIVABLE TEMPERATURE. CONSTRUCTION OF AN AIR PUMP THAT CAN PROVIDE ADDITIONAL VENTILATION IS ILLUSTRATED BELOW.

STUDY ALL INSTRUCTIONS BEFORE STARTING CONSTRUCTION

STEP 1 AIR PUMP



THE AIR PUMP OPERATES BY BEING SWUNG LIKE A PENDULUM. IT IS HINGED AT THE TOP OF ITS SWINGING FRAME. IT IS SWUNG BY PULLING AN ATTACHED CORD. THE FLAPS ARE FREE TO ALSO SWING AND WHEN THEY ARE IN THE CLOSED POSITION, AIR IS PUSHED THROUGH THE OPENING THAT THE PUMP IS ATTACHED TO.



TO OBTAIN MAXIMUM EFFICIENCY AND MOVE THE LARGEST AMOUNT OF AIR, THE UNUSED PORTIONS OF THE ENTRYWAY SHOULD BE COVERED WITH WOOD, PLASTIC, CLOTH, STIFF PAPER OR SIMILAR MATERIALS.

STEP 2 MATERIALS AND TOOLS NEEDED TO CONSTRUCT AN AIR PUMP

(MATERIALS SIZED FOR A 36-INCH BY 29-INCH PUMP)
LUMBER SIZES CAN BE ALTERED, DEPENDING ON AVAILABILITY.

* A. LUMBER

SIZE	QUANTITY	SIZE	QUANTITY
1" X 2" X 36"	2	1" X 2" X 32"	2
1" X 1" X 36"	1	1" X 1" X 32"	1
1" X 2" X 29"	2	1" X 4" X 36"	1

B. ONE PAIR ORDINARY DOOR OR CABINET BUTT HINGES, OR METAL STRAP HINGES, OR IMPROVISED HINGES MADE OF LEATHER, WOVEN STRAPS, CORDS OR FOUR HOOK & EYE SCREWS WHICH CAN BE JOINED TO FORM TWO HINGES.

C. 24 NAILS ABOUT 2" LONG, PLUS SCREWS FOR HINGES.

*D. POLYETHYLENE FILM, 3 TO 4 MILS THICK, OR PLASTIC DROP-CLOTH, OR RAINCOAT-TYPE FABRIC, OR STRONG HEAVY PAPER – 10 RECTANGULAR-SHAPED PIECES, 30" X 5½".

*E. 30' OF SMOOTH, STRAIGHT WIRE FOR USE AS FLAP PIVOT WIRES – (ABOUT AS THICK AS COAT-HANGER WIRE) OR CUT FROM 10 WIRE COAT HANGERS, OR 35' OF NYLON STRING (COAT-HANGER WIRE THICKNESS).

*F. 30 SMALL STAPLES, OR SMALL NAILS, OR 60 TACKS TO ATTACH FLAP PIVOT WIRES TO WOOD FRAME.

*G. 30' OF ¾" TO 1" WIDE PRESSURE-SENSITIVE WATERPROOF TAPE THAT DOES NOT STRETCH, OR USE NEEDLE AND THREAD TO SEW HEM TUNNELS TO THE FLAPS.

*H. FOR FLAP STOPS, 150 FT OF LIGHT STRING, STRONG THREAD, OR THIN SMOOTH WIRE. 90 TACKS OR SMALL NAILS TO ATTACH FLAP STOPS TO THE WOOD FRAME, OR FLAP STOPS CAN BE TIED TO THE FRAME.

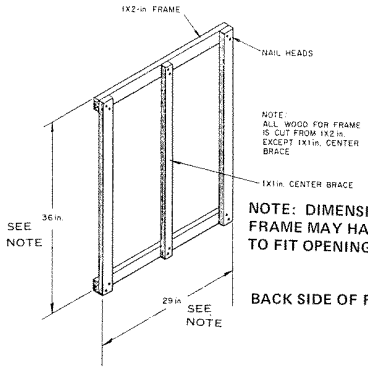
I. 10 FEET OF CORD FOR THE PULL CORD.

J. DESIRABLE TOOLS: HAMMER, SAW, WIRECUTTER-PLIERS, SCREWDRIVER, SMALL DRILL, SCISSORS, KNIFE, YARDSTICK, AND PENCIL.

* Items must be sized or adjusted to fit opening into which airpump is to be placed.

STEP 3 HOW TO CONSTRUCT THE AIR PUMP

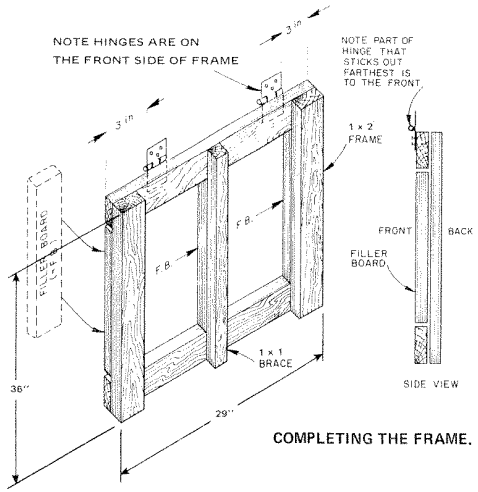
A. CUT LUMBER AND ASSEMBLE FRAME AS SHOWN



NOTE: DIMENSIONS SHOWN FOR FRAME MAY HAVE TO BE ADJUSTED TO FIT OPENINGS IN A SHELTER.

BACK SIDE OF FRAME

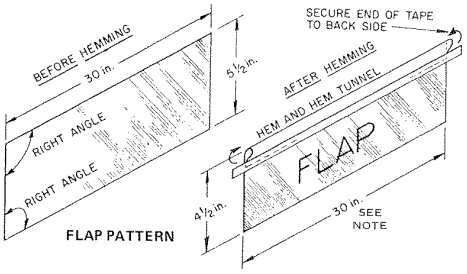
B. COMPLETE FRAME AND ATTACH HINGES. IF DRILL IS NOT AVAILABLE TO DRILL SCREW HOLES TO ATTACH HINGES, USE A NAIL TO MAKE THE HOLES.



COMPLETING THE FRAME.

HOW TO CONSTRUCT THE AIR PUMP (CONT'D)

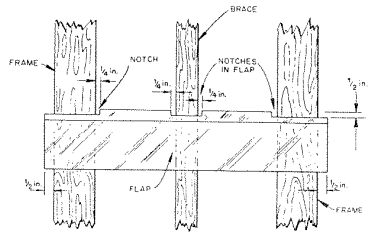
C. CUT 10 RECTANGULAR STRIPS 30" LONG BY 5½" WIDE FOR USE AS FLAPS. HEM FLAPS AS SHOWN. USE PRESSURE-SENSITIVE TAPE OR SEW HEM SHUT TO FORM HEM TUNNEL.



FLAP PATTERN

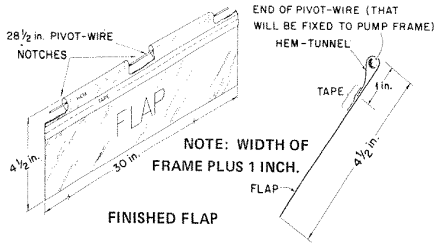
NOTE: WIDTH OF FRAME PLUS 1 INCH

AFTER HEM IS MADE, CUT NOTCHES IN FLAPS AS SHOWN. AVOID CUTTING TAPE THAT HOLDS HEM.



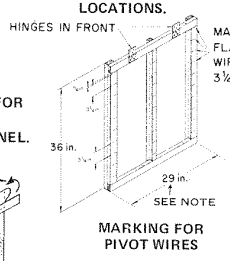
SIZE OF NOTCHES IN FLAPS

INSERT 10 PIECES OF STRAIGHT WIRE (PIVOT WIRES) INTO FLAP HEM AS SHOWN. FLAPS SHOULD SWING FREELY. STRING CAN BE USED IF WIRE NOT AVAILABLE (WIRE COAT-HANGER THICKNESS).



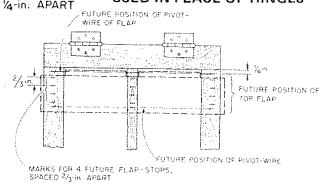
FINISHED FLAP

D. MARK PUMP FRAME FOR PIVOT WIRE AND FLAP STOP LOCATIONS.



MARKING FOR PIVOT WIRES

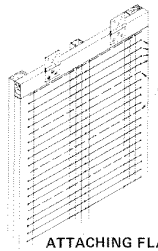
HOOK & EYE SCREWS MAY BE USED IN PLACE OF HINGES



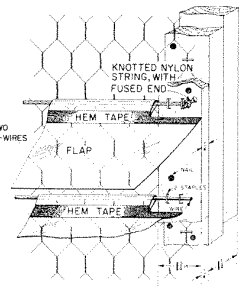
MARKING FOR FLAP STOPS.

NOTE: FRAME DIMENSIONS MAY HAVE TO BE ADJUSTED TO FIT OPENING IN SHELTER

E. ATTACH FLAP STOPS (STRINGS OR WIRES) TO THE PUMP FRAME AT THE MARKED LOCATIONS. 4 FLAP STOPS ARE NEEDED BETWEEN ADJACENT PIVOT WIRES'



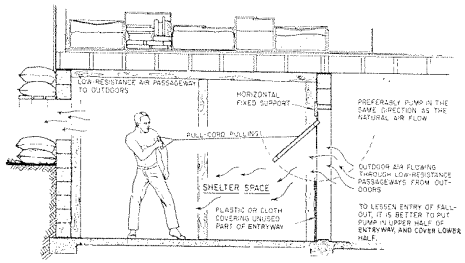
ATTACHING FLAP STOPS.



ALTERNATE METHOD – WIREMESH AS FLAP STOPS.

F. STARTING FROM THE BOTTOM – STAPLE, NAIL, TACK OR TIE THE FLAP PIVOT-WIRES WITH FLAPS IN THEIR MARKED POSITIONS. ATTACH HINGES TO HORIZONTAL SUPPORT BOARD. ATTACH PULLCORD TO CENTER BRACE.

STEP 4. TYPICAL INSTALLATION OF AIR PUMP



EMERGENCY LAMP

STEP 5. EMERGENCY LAMP

THIS TYPE OF LAMP WILL PROVIDE LIGHT FOR USE IN EXPEDIENT SHELTERS – THE LAMP WILL BURN SLOWLY CONSUMING ABOUT 3 OUNCES OF COOKING OIL IN 24 HOURS.

WARNING

DO NOT USE KEROSENE, DIESEL FUEL, OR GASOLINE – USE ONLY OILS OF THE KIND FOUND IN THE KITCHEN.

LOOP TO HANG LAMP

TO LIGHT LAMP, FIRST MAKE MATCH LONGER BY BY TAPING OR TYING IT TO A STICK.

ATTACH ALUMINUM FOIL 2/3 AROUND JAR AND UNDER ITS BOTTOM AND TO WIRES TO ACT AS A REFLECTOR. (NOT SHOWN.)

LIGHT WIRE

CLEAN GLASS JAR FREE OF LABELS

FILL JAR NO MORE THAN HALF-FULL WITH COOKING OIL

FLAME FROM END OF WICK IS JUST ABOVE OIL SURFACE

BENT NAIL, TIED OVER TOP OF ANOTHER BENT NAIL, SO THE BASE WILL NOT ROCK.

A FINE WIRE TIED IN ITS CENTER AROUND THE NAILS, WITH THE ENDS OF THE WIRE WOUND IN OPPOSITE DIRECTIONS AROUND THE COTTON-STRING-WICK. USE COTTON THAT IS SLIGHTLY LESS THAN 1/8- in. IN DIAMETER. USE WINDOW SCREEN WIRE OR OTHER EQUALLY FINE WIRE.

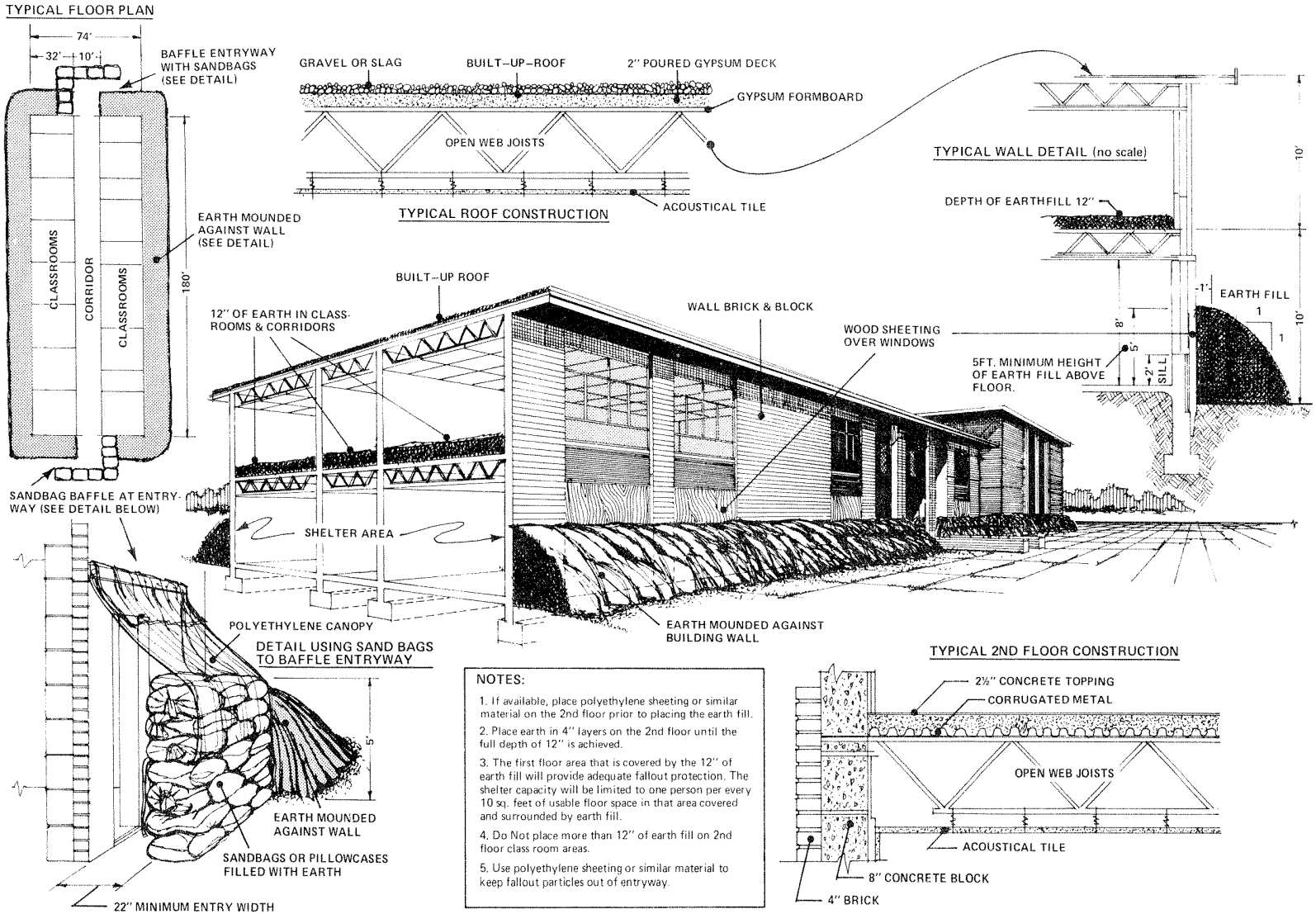
USE NAILS ABOUT ½-IN. SHORTER THAN THE DIAMETER OF JAR

WIRE-STIFFENED-WICK LAMP

KEEP EXTRA WIRE AND WICK-STRING IN SHELTER.

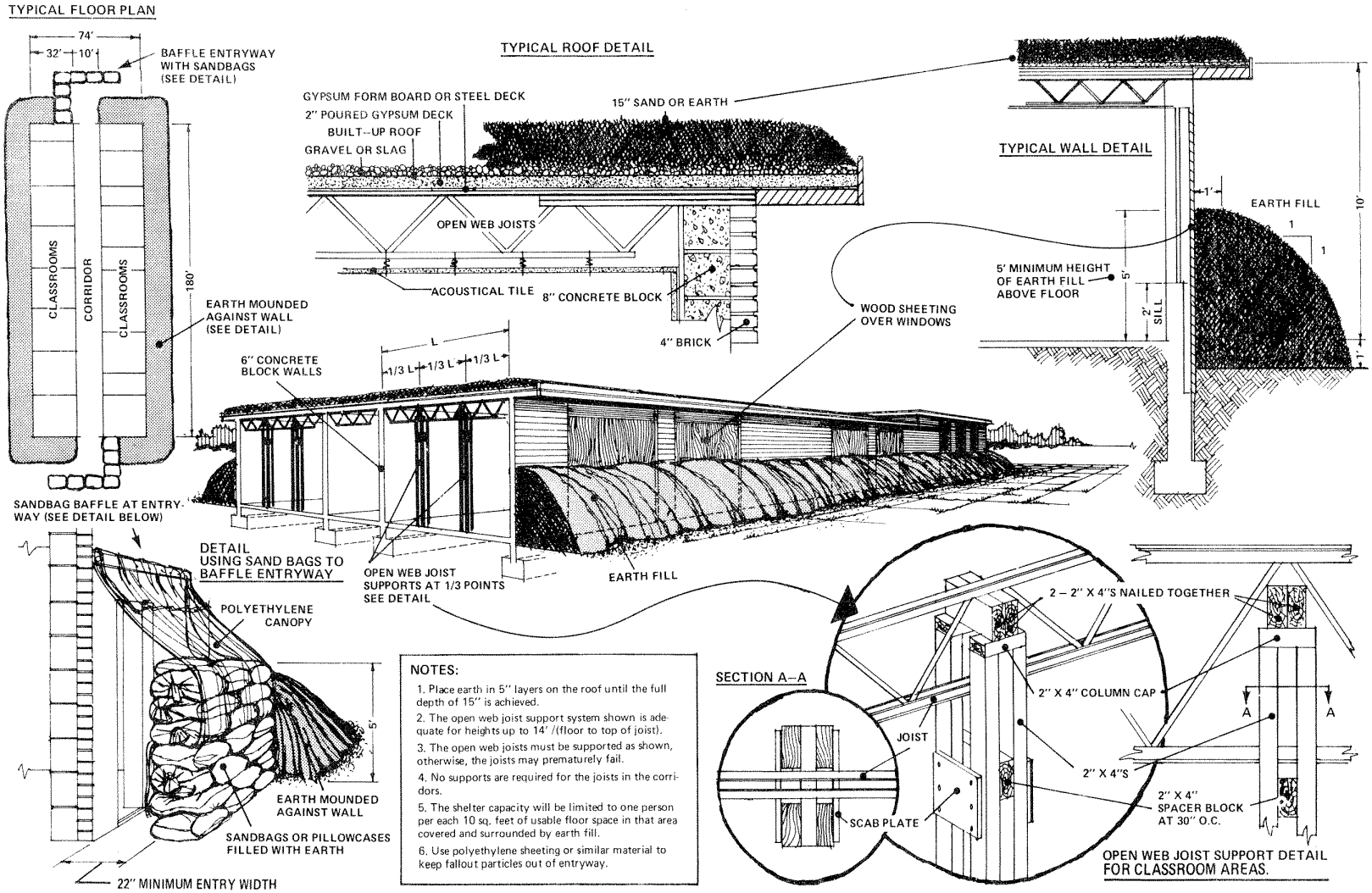
EXPEDIENT UPGRADING FALLOUT PROTECTION

typical two story elementary school without basement
- upgraded to obtain a protection factor of 40



EXPEDIENT UPGRADING FALLOUT PROTECTION

typical one story elementary school without basement - upgraded to obtain a protection factor of 40



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Home and Garden Bulletin No. 77

U.S. DEPARTMENT OF AGRICULTURE

This publication was prepared by the U.S. Department of Agriculture with cooperation by the Office of Civil Defense, U.S. Department of Defense.

The Office of Civil Defense recommends two methods of home food storage for emergencies:

1. Increase your regular food supply so there will always be a 2-week supply of food for your family in your home. Replace food as it is used.

2. Store and maintain in your fallout shelter or home a special 2-week stockpile of survival foods. Choose foods that will keep for months without refrigeration, require little or no cooking, and yet will provide a reasonably well-balanced family diet.

Decide which type of food reserve best meets your own situation. In some cases, a combination of these two methods may be desirable. The important thing is that you have enough food in your home or shelter to last until it is safe and possible to get more food.

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Washington, D.C.

Issued August 1961
Slightly revised July 1972

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402—Price 10 cents

An attack on the United States with nuclear weapons would make it necessary for many survivors to rely on their own food and water reserves—for up to 2 weeks following attack.

A nuclear explosion can blanket an area many miles from the target area with dangerous radioactive fallout. If you and your family survive the explosion, you may have difficulty obtaining food and water from regular sources without overexposure to fallout radiation. Essential services, such as gas, electricity, and water, may be disrupted.

Safeguard your family's survival by planning your food-and-water stockpile now. Start building it up in your home or fallout shelter. Maintain it.

> *Individuals and families are responsible for maintaining personal stocks of food and water in their homes or shelters sufficient to meet their needs until other supplies are available. The stocks should be sufficient for at least 2 weeks following attack.*

As soon as possible after attack—if there is one—local authorities will inform you of safe sources of food and water.

Stored food and water can also be useful in many peacetime emergencies.

FOOD

Every family should either build up and keep a 2-week supply of regular food in the home at all times or assemble and maintain a special 2-week stockpile of survival foods in the fallout shelter or home.

Survival foods may vary from a single cracker-type food, such as rye or wheat wafers or specially prepared biscuits, to a fairly complete assortment of familiar foods.

Stockpile foods should be in cans, jars, or sealed paper or plastic containers. Select foods that will last for months without refrigeration and can be eaten with little or no cooking.

Take into consideration the needs and preferences of family members, storage space, and ability to rotate the stored foods in family meals. Familiar foods are likely to be more acceptable in times of stress.

Kinds of food familiar to the family and suitable to store for emergency use are shown in table 1. Amounts suggested will supply the calories needed by one adult for 2 weeks. If your family consists of four adults, store four times the amount suggested in table 1. Teen-

TABLE 1.—*Guide for Reserve Food Supply*

Kind of food	Amount per person for—		Remarks
	1 day	2 weeks	
1. Milk	Equivalent of 2 glasses (fluid).	Equivalent of 7 quarts (fluid).	Each of the following is the equivalent of 1 quart of fluid milk: Evaporated milk: three 6-ounce cans; one 14½-ounce can. Nonfat dry milk or whole dry milk: 3 to 3½ ounces.
2. Canned meat, poultry, fish, cooked dry beans, and peas.	2 servings	28 servings (8 to 9 pounds).	Amounts suggested for one serving of each food are as follows: Canned meat, poultry: 2 to 3 ounces. Canned fish: 2 to 3 ounces. Canned mixtures of meat, poultry, or fish with vegetables, rice, macaroni, spaghetti, noodles, or cooked dry beans: 8 ounces. Condensed soups containing meat, poultry, fish, or dry beans or dry peas: one-half of a 10½-ounce can.
3. Fruits and vegetables	3 to 4 servings	42 to 56 servings (about 21 pounds, canned).	Amounts suggested for one serving of each food are as follows: Canned juices: 4 to 6 ounces, single strength. Canned fruit and vegetables: 4 ounces. Dried fruit: 1½ ounces.

4. Cereals and baked goods	3 to 4 servings	42 to 56 servings (5 to 7 pounds).	Amounts suggested for one serving of each food are as follows (selection depends on extent of cooking possible): Cereal: Ready-to-eat puffed: ½ ounce. Ready-to-eat flaked: ¾ ounce. Other ready-to-eat cereal: 1 ounce. Uncooked (quick-cooking): 1 ounce. Crackers: 1 ounce. Cookies: 1 ounce. Canned bread, steamed puddings, and cake: 1 to 2 ounces. Flour mixes: 1 ounce. Flour: 1 ounce. Macaroni, spaghetti, noodles: Dry: ¾ ounce. Cooked, canned: 6 ounces.
5. Spreads for bread and crackers.	According to family practices		Examples: Cheese spreads. Peanut and other nut butters. Jam, jelly, marmalade, preserves. Sirup, honey. Apple and other fruit butters. Relish, catsup, mustard.
6. Fats and vegetable oil	----------	Up to 1 pound or 1 pint.	Amount depends on extent of cooking possible. Kinds that do not require refrigeration.
7. Sugars, sweets, and nuts	----------	1 to 2 pounds	Sugar, hard candy, gum, nuts, instant puddings.
8. Miscellaneous	According to family practices and extent of cooking possible.		Examples: Coffee, tea, cocoa (instant). Dry cream product (instant). Bouillon products. Flavored beverage powders. Salt and pepper. Flavoring extracts, vinegar. Soda, baking powder.

agers are likely to need more than the amount in the table; younger children need less.

By including, each day, foods from the eight groups listed, members of your family can have a reasonably nutritious diet.

If necessary, include special kinds of milk and strained, chopped, or other specially prepared foods required for infants, toddlers, elderly persons, and others on limited diets.

Whenever possible, choose cans and jars in sizes that will fill your family's needs for only one meal. This is especially desirable for meat, poultry, fish, vegetables, evaporated milk, and other foods that deteriorate rapidly after a container is opened.

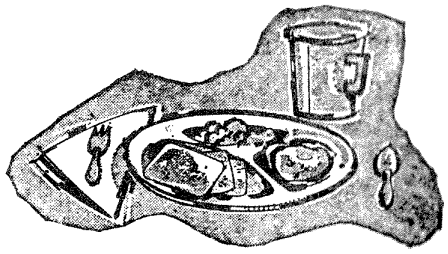
If your home food freezer is located in your basement or where you would have safe access to it after attack, you might count foods in it as some of your reserve supply.

Food spoilage in a well-filled, well-insulated home freezer does not begin until several days after power goes off. Food in large freezers will keep longer than food in small freezers. Once the freezer has been opened foods should be used as promptly as possible.

Sample Meal Plans

Sample meal plans are presented on pages 8 and 9. These plans suggest the kinds of meals you could serve from the foods shown in the table on pages 4 and 5.

Half of the meals fit a situation where there are no cooking facilities. The other meals require facilities for heating water or food but not for any extended cooking.



If you have provided a sufficient variety of canned foods in your reserve supply, it is possible to have reasonably well-balanced meals. However, because of limited space and in order to use fewer dishes, it may be more practical to serve fewer foods at a meal and make the servings more generous.

Storing and Replacing Foods

If you have prepared a fallout shelter, keep your reserve food supply there. If you have no shelter, keep it in that part of your basement where you will be safest in case of attack.

In homes without basements and in apartments, your food stockpile would probably be stored in the kitchen or in a storage closet.

To maintain the eating quality of your reserve food supply, keep foods in cans or jars in a dry place, where the temperature is fairly cool—preferably not above 70° F. and not below freezing.

Protect food in paper boxes from rodents and insects by storing boxes in tightly closed cans or other metal containers; leave the foods in their original boxes. Keeping these foods in metal containers also extends the length of time they can be stored.

Eating quality was the first consideration in setting the maximum replacement periods given on this page. Many food items will be acceptable for a much longer period if storage temperatures do not usually exceed 70° F. Most of the foods suggested in table 1 would be safe to use after longer storage periods.

It is a good idea to draw regularly on the food stockpile so that foods are used while they are still of good eating quality. As food items are used, replace them in the stockpile with fresh supplies. When you put in fresh supplies, put them at the back of the stockpile; keep older supplies in front.

Here are suggested replacement periods for the kinds of food listed in table 1:

Use within 6 months:
- Evaporated milk
- Dried fruit, in metal container
- Dry crisp crackers, in metal container
- Gum

Use within 1 year:
- Nonfat dry or whole dry milk, in metal container
- Canned meat, poultry, fish
- Mixtures of meat, vegetables, and cereal products, in sealed cans or jars
- Canned condensed meat-and-vegetable soups

Use within 1 year:—Continued
- Dehydrated soups, in metal container
- Canned fruits, fruit juices, and vegetables
- Cereal:
  - Ready-to-eat cereals, in metal container
  - Uncooked cereal (quick-cooking or instant), in metal container
- Hydrogenated fats, vegetable oils
- Sweets and nuts:
  - Hard candy
  - Nuts, canned
  - Instant puddings
- Miscellaneous:
  - Coffee, tea, cocoa (instant)
  - Dry cream products (instant)
  - Bouillon products
  - Flavored beverage products
  - Flavoring extracts
  - Soda, baking powder

May be stored indefinitely:
- Sugar
- Salt

You may want to label cans and containers with the date of purchase and the approximate date when the particular item should be replaced by a new supply. Suggested charts for keeping a record of your family food reserves are given on pages 13, 14, and 15 of this bulletin.

Canned foods are generally safe to eat as long as the seal of the can is not broken. Food spoilage may have occurred if a can has bulging ends, is leaking, or if, when the can is opened, there is spurting liquid, off-odor, or mold on the food.

When food in glass containers becomes spoiled, the cover may bulge, or the container may show leakage of the food through the broken seal. Gas bubbles, cloudiness, and films of growth that can be seen through the glass may indicate bacterial growth.

SAMPLE MEAL PLANS: *No Cooking Facilities*

First day	Second day	Third day
MORNING		
Citrus fruit juice.[1] Ready-to-eat cereal. Milk, cold coffee,[2] or tea.[2] Crackers. Peanut butter or other spread.	Fruit juice.[1] Corned beef hash.[1] Crackers. Spread. Milk, cold coffee,[2] or tea.[2]	Grapefruit segments.[1] Ready-to-eat cereal. Vienna sausage.[1] Milk, cold coffee,[2] or tea.[2]
NOON		
Spaghetti with meat sauce.[1] Green beans.[1] Crackers. Spread. Milk, cold coffee,[2] or tea.[2]	Baked beans.[1] Brown bread.[1] Tomatoes.[1] Fruit.[1] Milk, cold coffee,[2] or tea.[2]	Chile con carne with beans.[1] Crackers. Fruit.[1] Cookies. Milk, cold coffee,[2] or tea.[2]
BETWEEN MEALS		
Fruit-flavored drink or fruit drink.	Milk.	Tomato juice.
NIGHT		
Lunch meat.[1] Sweetpotatoes.[1] Applesauce.[1] Milk, cold coffee,[2] or tea.[2] Candy.	Pork and gravy.[1] Corn.[1] Potatoes.[1] Instant pudding. Fruit juice.[1]	Sliced beef.[1] Macaroni and cheese.[1] Peas and carrots.[1] Crackers. Milk, cold coffee,[2] or tea.[2]

[1] Canned. [2] Instant.

SAMPLE MEAL PLANS: *Limited Cooking Facilities*

First day	Second day	Third day
MORNING		
Citrus fruit juice.[1] Ready-to-eat cereal. Milk. Hot coffee,[2] tea,[2] or cocoa.[2]	Citrus fruit juice.[1] Hot cereal (quick-cooking). Milk. Hot coffee,[2] tea,[2] or cocoa.[2]	Prunes.[1] Ready-to-eat cereal. Milk. Crackers. Cheese. Hot coffee,[2] tea,[2] or cocoa.[2]
NOON		
Vegetable soup.[1] Potato salad.[1] Crackers. Ham spread.[1] Milk. Candy bar.	Beef-and-vegetable stew.[1] Green beans.[1] Crackers. Peanut butter. Milk.	Chile con carne with beans.[1] Tomatoes.[1] Crackers. Hot coffee,[2] tea,[2] or cocoa.[2]
BETWEEN MEALS		
Fruit-flavored drink or fruit drink.	Tomato juice.[1]	Fruit-flavored drink or fruit drink.
NIGHT		
Beef and gravy.[1] Noodles.[1] Peas and carrots.[1] Instant pudding. Hot coffee,[2] tea,[2] or cocoa.[2]	Tuna fish,[1] cream of celery soup,[1] mixed sweet pickles [1]—combined in one dish. Fruit.[1] Cookies. Hot coffee,[2] tea,[2] or cocoa.[2]	Lunch meat.[1] Hominy.[1] Applesauce.[1] Cookies. Peanuts. Hot coffee,[2] tea,[2] or cocoa.[2]

[1] Canned. [2] Instant.

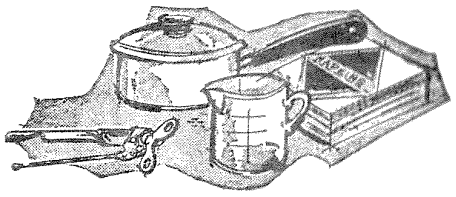
If the seal has broken on jars of baby food, the "safety button" in the center of the lid will be pushed upward instead of drawn downward.

Food from containers showing any signs of food spoilage should be discarded immediately *without tasting.*

Equipment for Cooking and Serving

You need to have ready certain equipment for emergency cooking and serving.

A suggested list includes: a small, compact cooking unit, such as the ones used by campers; one or two cooking pans; disposable knives, forks, and spoons; paper plates, towels, cups, and napkins; can and bottle openers; nursing bottles and nipples if there is a baby in the family; measuring cup; medicine



dropper for measuring water purifier; matches; and a pocket knife.

If you already have plastic dishes, cups, forks, knives, and spoons, you may want to use them instead of disposable tableware. They would probably take less space to store, but water for washing them might not be available after an attack.

If disposable serving dishes and eating utensils are used, each family will need to estimate the number required for a 2 weeks' period.

Store your emergency cooking and serving equipment with your reserve food supply or near it.

WATER

You and your family can get along for quite a while without food, but only for a short time without water. Store a 2 weeks' supply of water for each member of your family NOW.

Allow at least one-half gallon of water per person each day, or 7 gallons for a 2 weeks' period, for drinking purposes in moderate weather. Extra water should be stored where temperatures are above the comfort zone.

If a family member needs more than the minimum amount of water specified because of chronic illness or other condition, be sure to consider his needs in planning your supply of water.

Some of the need for liquids can be met by storing large quantities of fruit juice and soft drinks.

If you want to have water available for bathing, brushing teeth, and dishwashing, it should be of the same quality as water stored for drinking, and must be stored in addition to the amount mentioned above. Another 7 gallons of water is recommended for such purposes.

Some of your water requirements could be met by making use of the

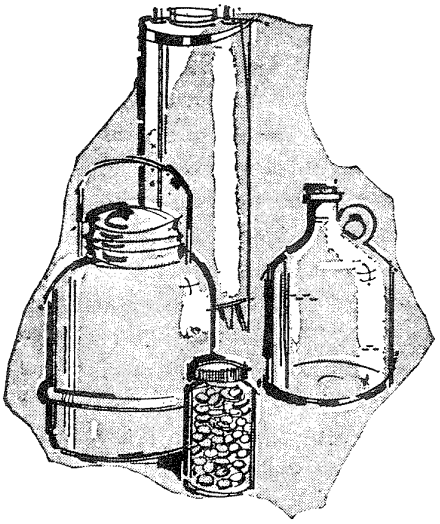
water in home hot-water tanks and toilet tanks.

At the time of attack, water in these tanks would be safe to use. Know the location of your main incoming water valve so you can shut it off if directed by local health authorities, to prevent the entrance of contaminated water. As a safety measure the valve on the gasline to your hot-water heater should be turned off also.

Water from a hot-water tank can be obtained by opening the drain cock at the bottom of the tank. To get a free flow of water with the watere inlet valve turned off, you may need to vent the tank by turning on a faucet somewhere on the waterline. Some hot-water tanks are automatically vented.

Safe Sources of Water for Storage

It is of the utmost importance that water stored for emergency use be clean. Any water that has been tested and approved by health authorities would be safe to store.



If there is any question about the safety or cleanliness of the water you intend to store or if it has not been tested and approved by health authorities, it must be purified before it is stored.

How to Purify Water

Boiling.—The safest method of purifying water is to boil it vigorously for 1 to 3 minutes to destroy bacteria that might be present. Boiling, however, does *not* destroy radioactivity. To improve the taste of the water after it has been boiled, pour the boiled water from one clean container to another several times.

Easy bleach method.—Any household bleach solution that contains hypochlorite, a chlorine compound, as its only active ingredient will purify water easily and inexpensively.

Bleach solutions with 5.25 percent of sodium hypochlorite are most common. They are available in grocery stores. Add the bleach solution to the water in any clean container in which it can be thoroughly mixed by stirring or shaking. The following table shows the proper amount of a 5.25-percent solution to add to water.

Amount of water	Amount of solution to add to—	
	Clear water	Cloudy water
1 quart (¼ gallon).	2 drops.	4 drops.
1 gallon	8 drops.	16 drops.
5 gallons	½ teaspoon.	1 teaspoon.

Add the chlorine solution to the water and stir, then let the mixture stand for 30 minutes. After this length of time the water should still have a distinct taste or smell of chlorine. If this taste or smell is not present, add another dose of the solution to the water and let the water stand another 15 minutes. The taste or smell of chlorine in water thus treated is a sign of safety. If you cannot detect chlorine in the water you are trying to purify by this method, do not store it. The chlorine solution may have weakened through age or for some other reason.

Iodine or tablet purification.— If you have ordinary household 2-percent tincture of iodine in your home medicine chest, you can use it to purify small quantities of water. Add 3 drops of tincture of iodine to each quart of clear water, 6 drops to each quart of cloudy water. For a gallon, add 12 drops for clear water, 24 drops for cloudy water. Stir thoroughly.

Water-purification tablets that release chlorine or iodine can be used safely to purify water. They are inexpensive and can be bought at most sporting goods stores and some drugstores.

If you use water-purification tablets, follow the directions on the package. Usually 1 tablet is sufficient for 1 quart of water; double the dosage if the water is cloudy.

Storing Water Reserves

Store your water reserves in thoroughly washed, clean containers, preferably of heavy plastic with tight-fitting caps, or in glass jugs or bottles with screw tops. Metal containers tend to give water an unpleasant taste.

You may want to buy 5-gallon containers of rigid plastic or glass for water storage. The plastic containers have the advantage of being shatterproof and lighter in weight than glass jugs.

Pack glass containers tightly against damage or shock. Put newspapers, excelsior, or other packing material between the containers to keep them from coming in contact with one another.

Clean water stored in this way should remain palatable for an indefinite period. It is advisable to check the containers every few months for leaks. At the same time check the water for cloudiness or other undesirable appearance or undesirable taste. If undesirable appearances or tastes have developed, the water should be changed.

WARNING

Water that has been contaminated by radioactive material should not be used unless no alternate supply is available. The danger from water contaminated in this way is greatest immediately after fallout deposition. Infants and children are more at risk from such water than are adults.

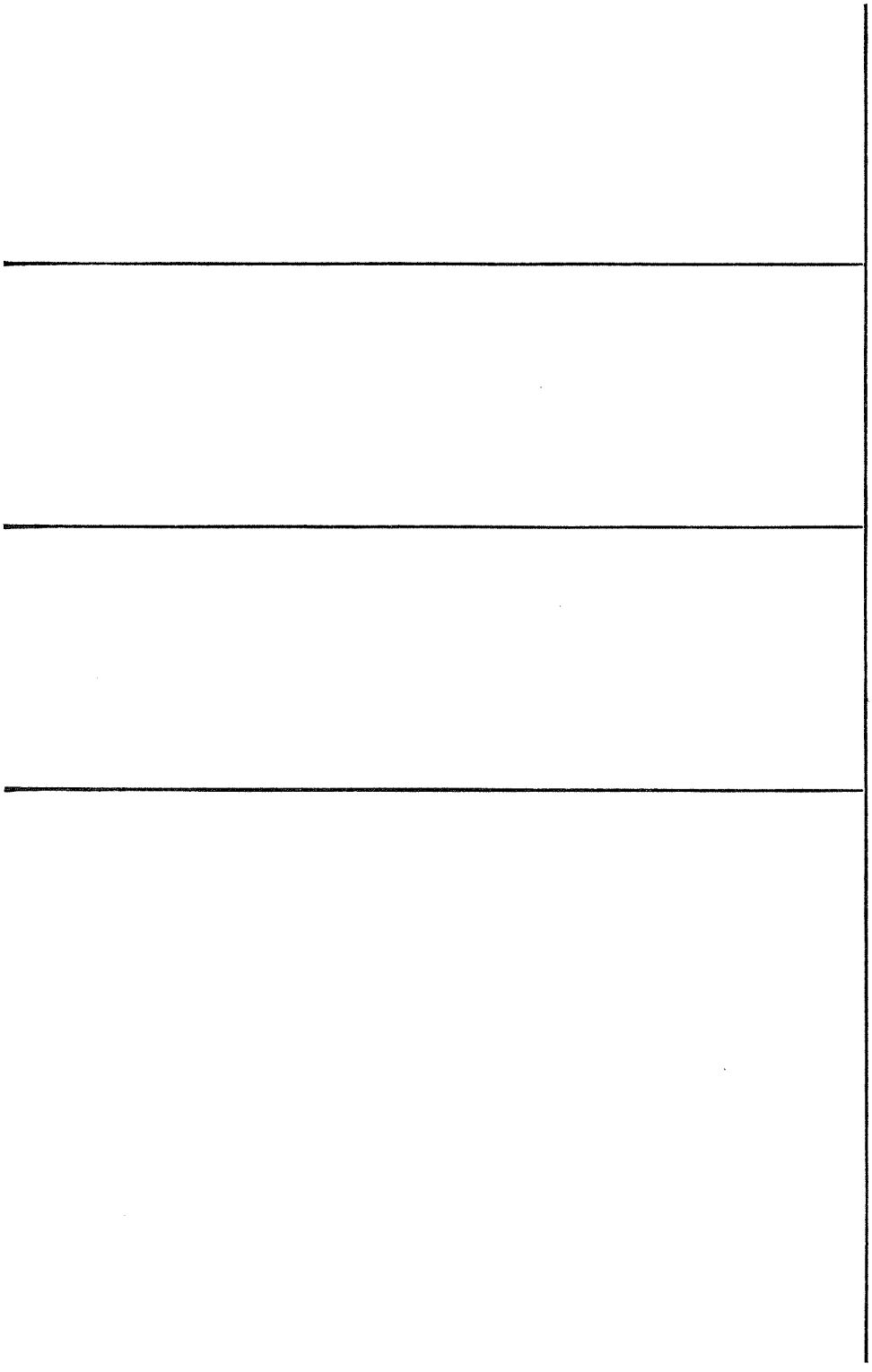
Water from springs and covered wells could be used.

OUR FAMILY FOOD RESERVE

Kind of food	Amount stored	Date purchased	Suggested replacement date

OUR FAMILY FOOD RESERVE

Kind of food	Amount stored	Date purchased	Suggested replacement date



FURTHER INFORMATION . . .

In Time of Emergency: A Citizen's Handbook on . . . Nuclear Attack . . . Natural Disasters." H–14, March 1968. This handbook, prepared by the Office of Civil Defense, U.S. Department of Defense, contains comprehensive information on the effects of nuclear weapons and natural disasters, and how people can protect themselves. Descriptions of home fallout shelters and methods of improvising shelter are included. You can obtain copies from your State or local civil defense office.

Civil Defense. MP–54, May 1970. This publication, prepared by the Office of Civil Defense, U.S. Department of Defense, briefly describes the nationwide civil defense program, and also presents personal-preparedness information. You can obtain copies from your State or local civil defense office.

Defense Against Radioactive Fallout on the Farm. Farmers' Bulletin 2107. Presents easily understood information on the effects of radioactive fallout on the farm. Includes recommendations for the protection of the farm family, for livestock, and for land and crops. Further information on radioactive fallout may be obtained from your county agricultural agent or from U.S. Department of Agriculture, Washington, D.C. 20250.

The following motion pictures on defense and radioactive fallout are available:

Fallout and Agriculture. (USDA, 16 mm., sound, color, 23 minutes.)

The Safest Place. (USDA, 16 mm., sound, color, 13½ minutes.)

These films may be borrowed from the film library of your State land-grant college. For the address of the land-grant college in your State, write to Motion Picture Service, Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

About Fallout. (OCD, 16 mm., sound, color, 24 minutes.)

This may be borrowed from your Army Audio-Visual Communication Center (formerly Army Film and Equipment Exchange).

F

PREPARE!

Here are some things you can do that will better prepare you and your family to survive and recover if a nuclear attack should occur.

- Check the map on page to see if you live in the risk area.
- Go over the checklist of things to take with you. If you will need a prescription medicine or special food, check to see if you have an ample supply.
- Collect all of your valuable papers and put them in one place, preferably wrapped in plastic in a metal container (tool box, fishing tackle box, etc.)
- Check your home for security. See that all locks are secure. Store valuables in a safe place. Shut off utilities if you evacuate or attack is likely.
- Close all window blinds, shades, and drapes. This can help prevent fires from the heat wave of a nuclear explosion.
- If you will use your car, be sure you have enough gas.
- Be sure to take tools—especially SHOVELS, PICKS, HAMMERS. These will be essential in improvising fallout shelters. **Also, take work gloves.**
- Stay tuned to your local TV or radio station for instructions. They will broadcast the notice to evacuate, if directed by government officials.

Read this supplement carefully and discuss it with your family. If you have special problems not discussed in these instructions,

call

SURVIVAL SUPPLIES

CLOTHING AND BEDDING

- ☐ * work gloves
- ☐ * work clothes
- ☐ * extra underclothing
- ☐ * outerwear (depending on season)
- ☐ * rain garment
- ☐ * extra pair of shoes
- ☐ * extra socks or stockings
- ☐ * sleeping bags and/or
- ☐ * blankets and sheets

FOOD AND UTENSILS

- ☐ Take all the food you can carry (particularly canned or dried food requiring little preparation)
- ☐ water
- ☐ thermos jug or plastic bottles
- ☐ bottle and can opener
- ☐ eating utensils
- ☐ plastic or paper plates, cups, and napkins
- ☐ plastic and paper bags
- ☐ * candles and matches
- ☐ plastic drop cloth

PERSONAL, SAFETY, SANITATION, AND MEDICAL SUPPLIES

- ☐ * battery operated (transistor) radios, extra batteries
- ☐ * flashlight, extra batteries
- ☐ * soap
- ☐ * toothbrush & toothpaste
- ☐ * shaving articles
- ☐ * sanitary napkins
- ☐ * detergent
- ☐ * towels and washcloths
- ☐ * toilet paper
- ☐ emergency toilet
- ☐ garbage can
- ☐ newspapers
- ☐ first aid kit
- ☐ * special medication (insulin, heart tablets, or other)

BABY SUPPLIES

- ☐ * diapers
- ☐ * bottles and nipples
- ☐ * milk or formula
- ☐ * powder
- ☐ * rubber sheeting, etc.

TOOLS FOR CONSTRUCTING A FALLOUT SHELTER

- ☐ pick ax
- ☐ shovel
- ☐ saw
- ☐ hammer
- ☐ broom
- ☐ ax
- ☐ crowbar
- ☐ nails and screws
- ☐ screw driver
- ☐ wrench

IMPORTANT PAPERS

- ☐ * Social Security card
- ☐ * deeds
- ☐ * insurance policies
- ☐ * stocks and bonds
- ☐ * will
- ☐ * savings account books
- ☐ * credit cards, checks, and currency

*Items to take if you use Public Transportation

DO NOT TAKE

- ☐ FIREARMS—(Guns of any kind)
- ☐ NARCOTICS
- ☐ ALCOHOLIC BEVERAGES

G

WHY YOU SHOULD EVACUATE

The area could be a potential target if the United States is attacked. The area where the greatest danger may exist is shown on the map. To protect the people living in this area, plans have been made to relocate them to nearby areas which are considered to be safer from direct attack.

Those living in this risk area who do not leave according to instructions will be subject to strictly-enforced curfews. Movement within the risk area will be severely restricted to protect the property of those who have evacuated. In addition, most facilities or services cannot be provided in the risk area during the evacuation period. In general, food and retail outlets will be closed. Available food and goods will be used to supply the evacuated population in the reception areas.

Should an attack occur, the best existing public shelters within the risk areas will be reserved for key workers who will be working in essential industries, and for hospitalized or institutionalized people who cannot be evacuated.

WHO WILL GO

When *official notification* is given, all those living in the vicinity of who are in the risk area shown on the map will be directed to evacuate* to reception areas in nearby counties—that is, from a place of possible danger to a place of safety.

You can determine whether you should evacuate by locating where you live on the map. If it is within the risk area, you should be prepared to leave if notification is given. Two days or possibly more should be available to complete the evacuation. However, you should prepare now so that you can get ready to leave in an orderly manner, if notification of evacuation is given.

*Shift workers may be told to stay on their job until the end of their shift

IF YOU ARE IN A HOSPITAL...

Most hospital patients will be evacuated. However, if it is impossible for you to be moved because of special care requirements, you will be cared for during the evacuation period. Similar consideration will be given to those residing in other institutions. Shelter and care will be provided in case of an imminent attack.

WHERE TO GO

- *If You Have A Vacation Cabin, Relatives, Friends...*

As the crisis intensifies and evacuation appears imminent, if you have a vacation cabin or friends or relatives outside the risk area, but within a reasonable distance, *go there* as soon as possible. As evacuation gets underway, it may be difficult or impossible to get to the location of your choice.

- *If You Do Not Have A Definite Location To Go To...*

You should proceed to the nearest reception area indicated for you on page

- *If You Are A Key Worker . . .*

If you have been designated by your employer as a key worker in an essential industry, you will be expected to evacuate with your family to a reserved nearby reception area. (See page). You will not be expected to stay in , but will commute daily to work from your assigned reception area. Protection will be provided for you while at work, and you will be able to join your family after work.

WHAT TO DO WHEN YOU ARRIVE

Your assignment to a reception area is explained in detail on page , entitled "How to Determine Your Assigned Route and Destination." When you reach a major community or town in your assigned reception county, proceed immediately to your assigned reception area. You can find this by following signs with the number of the last digit of your auto license plate.

At the center you will register yourself and your family. Reception county officials will make every effort to assign you to a place to sleep, in a larger building or possibly with a private household that has volunteered to share their home.

Lodging in Public Buildings . . .

If you are assigned to a public building such as a school, church, or other temporary lodging center, do everything you can to help maintain order and sanitary living conditions. Elect a leader and form working groups to help local officials and volunteers with such tasks as:

- Cooking and feeding services
- Providing water supply
- Cleaning up trash and garbage
- Maintaining order
- Assuring quiet during sleeping hours
- Organizing recreation and religious activities
- Arranging medical care for the sick and assisting the handicapped

HOW TO KEEP INFORMED

Listen to the radio for information and advice from National, State, and local officials. You will be told when you should return home. DO NOT RETURN HOME BEFORE YOU ARE ADVISED TO DO SO. It is impossible to predict how long you will have to stay in the reception area. It could be only for a few days or could last for a week or more.

If a nuclear attack should occur and the Emergency Broadcasting System (EBS) is in operation, a number of radio broadcast stations will remain on the air to provide emergency information. All other radio stations will stop broadcasting. Those emergency stations remaining on the air will provide you with information and instructions that you will need.

WHAT TO TAKE

You should prepare to take those things you would take for a vacation trip of a week or more—plus other items on the checklist (page). Do not take all your favorite belongings. Your home and property will be protected from looters while you are away.

The checklist on page includes items you will need for your stay in the reception area. It also includes tools needed to construct a fallout shelter and those things you will need to take into the shelter if an attack occurs.

All items on this list should be included if you are going to use your own car for transportation. If you do not have a car and will be using public transportation, take only those items which can be carried in a suitcase such as those marked with an asterisk on the list given on page

PETS

No arrangements have been made to house pets in the reception area. Therefore, if you take your pet with you, it will probably be confined to your car and you will be responsible for its care. If you elect to leave your pets behind, be sure they are confined in a sheltered area with an adequate supply of food and water. Above all, do not turn your pet loose to fend for itself while you are gone.

HOW TO GET THERE

If you have a car, truck, camper, or recreation vehicle, drive it to your designated reception area, using the route shown on the Evacuation Route Map. Remember that several days should be available for relocating all those living in the risk area. Take the time you need to prepare and pack.

Evacuation routes have been designated to assure residents will be equally distributed among the reception counties so that there will be adequate food and lodging for you and your family. If you use a route not assigned to you, you may find the reception area you have chosen is filled, and there is no room or accommodations for you. Follow the evacuation route to the reception county as indicated. **Wherever possible, police officers will be on duty to advise and direct you. Obey all instructions by law enforcement officers.**

If you get caught in a traffic jam, turn off your engine, remain in your car, listen for official instructions, and be patient. Do not get out of line to find an alternate route. All routes will be crowded. If traffic is stopped for an hour or more, do not leave your car for any reason.

Be sure you have adequate gasoline when you start out. DO NOT BUY ANY MORE GAS THAN YOU WILL NEED. Gasoline will be in short supply and will be needed to provide you with food and other essential supplies. But if you run out of gas or have other mechanical difficulties, move your car to the side of the road out of the traffic lanes to allow traffic to continue. Service to stalled autos will be available during the evacuation period. Leave your hood up as a sign that you are stalled, and you will be assisted as soon as possible.

IF YOU DON'T HAVE TRANSPORT...

If you have no private means of transportation, go to _between the hours of XX a.m. and XX p.m. Government authorities will provide transportation to move you to your reception area.

IF YOU ARE DISABLED...

If you are physically unable to get to for transportation, you can make arrangements to be picked up and be transported to your reception area. Call...

THE DEPARTMENT OF COMMUNITY SERVICES

XXX-XXXX

FACTS ABOUT A NUCLEAR EXPLOSION

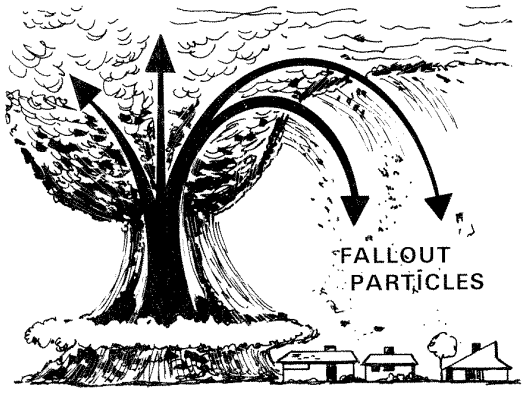
If you are in an unprotected area near where a nuclear weapon explodes, you could not survive the effects of the blast and heat generated by the explosion. After the explosion, the major danger is from radiation sickness caused by radioactive fallout. This fallout can endanger the life and health of people outside the high risk area. However, protective measures can be taken to safeguard you and your family from the effects of nuclear fallout.

This section describes what fallout is and how to protect yourself against its effects.

WHAT CAUSES FALLOUT. . .

When a nuclear weapon explodes, great quantities of earth and other debris are sucked up into a nuclear cloud. The bits and particles of earth are mixed with the radioactive materials produced by the explosion and become "radioactive."

Within a short time, these fallout particles drift back to earth. Carried by the wind, they can spread over a large area far from the explosion site.



The particles may look like fine grains of sand, but the gamma rays they give off cannot be seen. (Special instruments are required to detect the rays and measure their intensity.) The particles can be swept, brushed, or washed off.

WHY FALLOUT IS DANGEROUS. . .

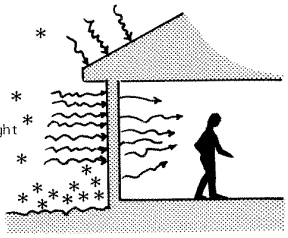
The gamma rays given off by radioactive fallout particles can cause physical and chemical changes in the cells of the body, causing radiation sickness. No special clothing can protect you from the rays and there is no known drug or chemical that can prevent radiation from damaging the cells of the body. Large doses of radiation will cause death. But if you receive small or medium doses, the body will repair itself and you will get well.

The amount of gamma radiation that you can tolerate depends on a number of factors. The effects of radiation are more severe in very young or very old persons and those not in good health. Also, a single large dose received in a short period of time is more damaging than the same dose received over a longer period. People exposed to radiation DO NOT BECOME RADIOACTIVE and consequently are not dangerous to other people. Radiation sickness is NOT contagious and one person cannot infect another.

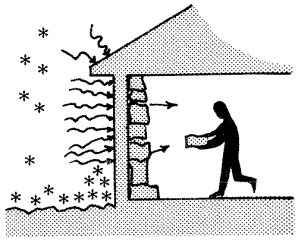
The gamma rays can pass through light materials. A considerable thickness of heavy material is required to stop the penetration of these rays.

Single particle emitting gamma rays

Gamma radiation can penetrate light materials. It loses some of its strength, however, when it passes through.



The thicker and heavier the material the more gamma rays are blocked out; therefore fewer pass through to cause injury.



The important points to remember about the danger of fallout are:

- You cannot see the gamma rays given off by fallout particles.
- Gamma radiation can penetrate light materials, therefore, heavy clothing alone will not protect you from these rays. If fallout particles should get on your skin, they should be brushed off to avoid skin burns.
- Radiation is more dangerous to very young, very old or sick people than to those in good health.
- A large dose of radiation received in a short period is more damaging than smaller doses received over a longer period.
- Radiation sickness is not contagious and cannot be passed from one person to another.

HOW TO PROTECT AGAINST FALLOUT

Radiation loses its strength:

- With the passage of time
- As it passes through materials
- As the distance from the particle is increased

The best protection is to surround yourself with heavy materials. A fallout shelter will give you this kind of protection.

A fallout shelter does not need to be a special type of building. Any building will provide some level of protection. If the walls and roof are thick or heavy enough to absorb many of the rays given off by the particles outside, then better protection can be obtained. Even caves and mines can provide protection.

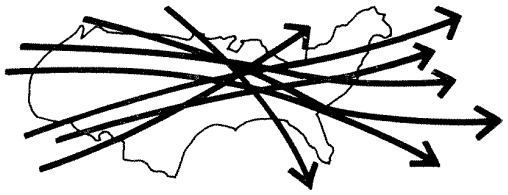
The key fact to remember is the farther you are from radioactive fallout particles, the safer you are from radiation. For example, you have more protection in a basement than on the top floor of a building. Likewise, there is more protection in an inner corridor of an above-grade structure than near an outside wall.

WHO WILL NEED FALLOUT PROTECTION

There is no way of predicting in advance where or how soon fallout will settle to the ground. This depends on the weather and on the direction and speed of the winds.

Areas close to a nuclear explosion might receive fallout within 20 or 30 minutes. Depending on the winds, it may take 5 to 10 hours for particles to drift down on communities 100 miles or more from the explosion.

The heavier particles giving off the most intense radiation will fall first. The lighter particles falling later will have lost much of the radiation high in the atmosphere. The first 24 hours after the fallout begins to settle are the most dangerous. The radiation from the particles loses its strength over time. The longer you are in a shelter, the lower the outside radiation levels will be when you emerge.



After a nuclear attack, dangerous levels of fallout COULD occur any place in the United States. Everyone, therefore, must have protection in case fallout occurs in his community.

HOW TO PROVIDE FALLOUT SHELTER

Many larger buildings have been designated as public fallout shelters. They are marked by signs like this:

However, most public shelters are in larger cities and may be needed by essential workers or those who cannot be relocated. Those counties which serve as hosting areas usually do not have enough shelters for their own residents. Consequently, it will be necessary for many residents of host counties—AND FOR MOST CITY EVACUEES—to upgrade the protection in the building they are to stay in or to improvise their own fallout protection.

Both the residents of the host areas and the city evacuees will have to *WORK HARD FOR A DAY OR MORE* to construct improvised shelters to protect against fallout. In this case, radiation protection would be "cheap as dirt." Upgrading existing structures by piling earth outside them can be done by adding an average of one cubic yard of earth for each 10 square feet of shelter space to be developed (more for some buildings, less for others). Moving a cubic yard of earth is not easy—it's about 80 to 100 buckets full—but can be done if everyone works for their survival.

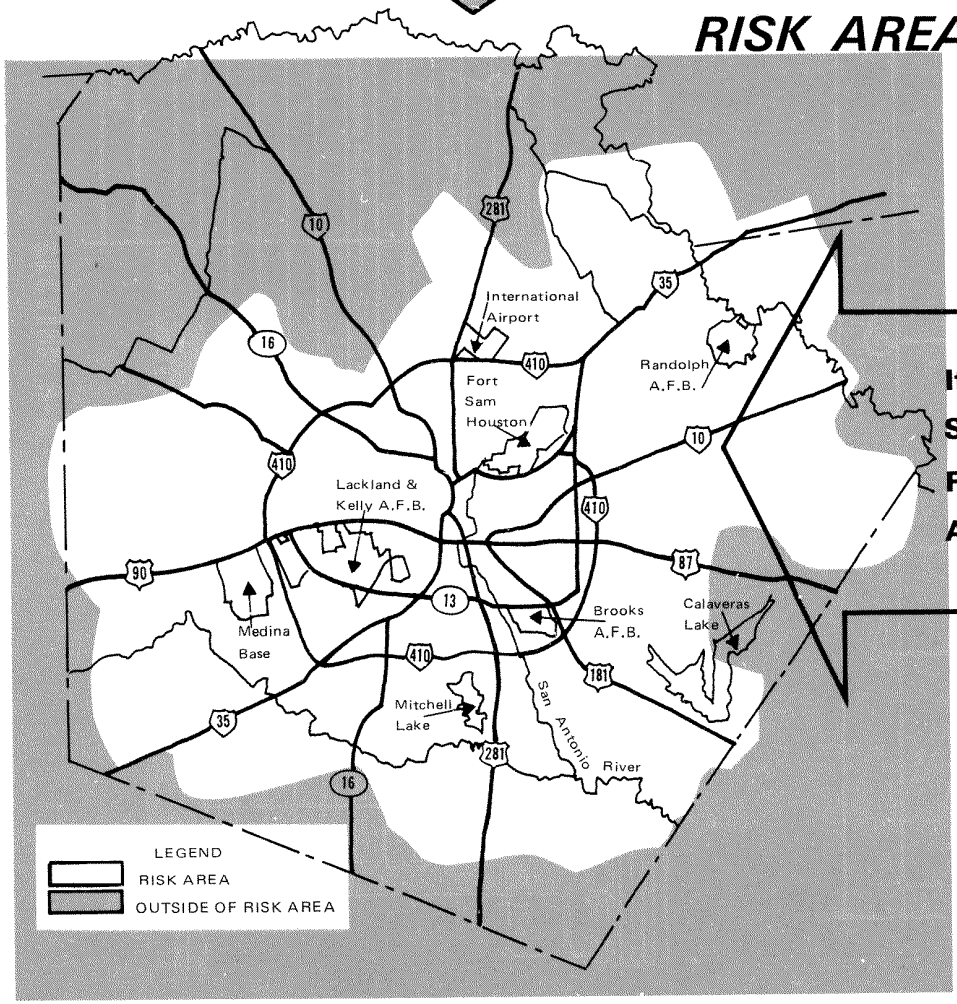
Shelter in host areas can be found in the following:

- Buildings which have been identified in the National Shelter Survey and marked with a shelter sign.
- Home basements.
- Other buildings which can be upgraded to improve the fallout protection by placing earth overhead and against the walls.
- Caves, mines, and tunnels.
- Expedient fallout shelters involving digging of trenches, movement of earth, or use of materials at hand, such as tables, doors, bricks, or books.

H

Check to see if you live in the RISK AREA

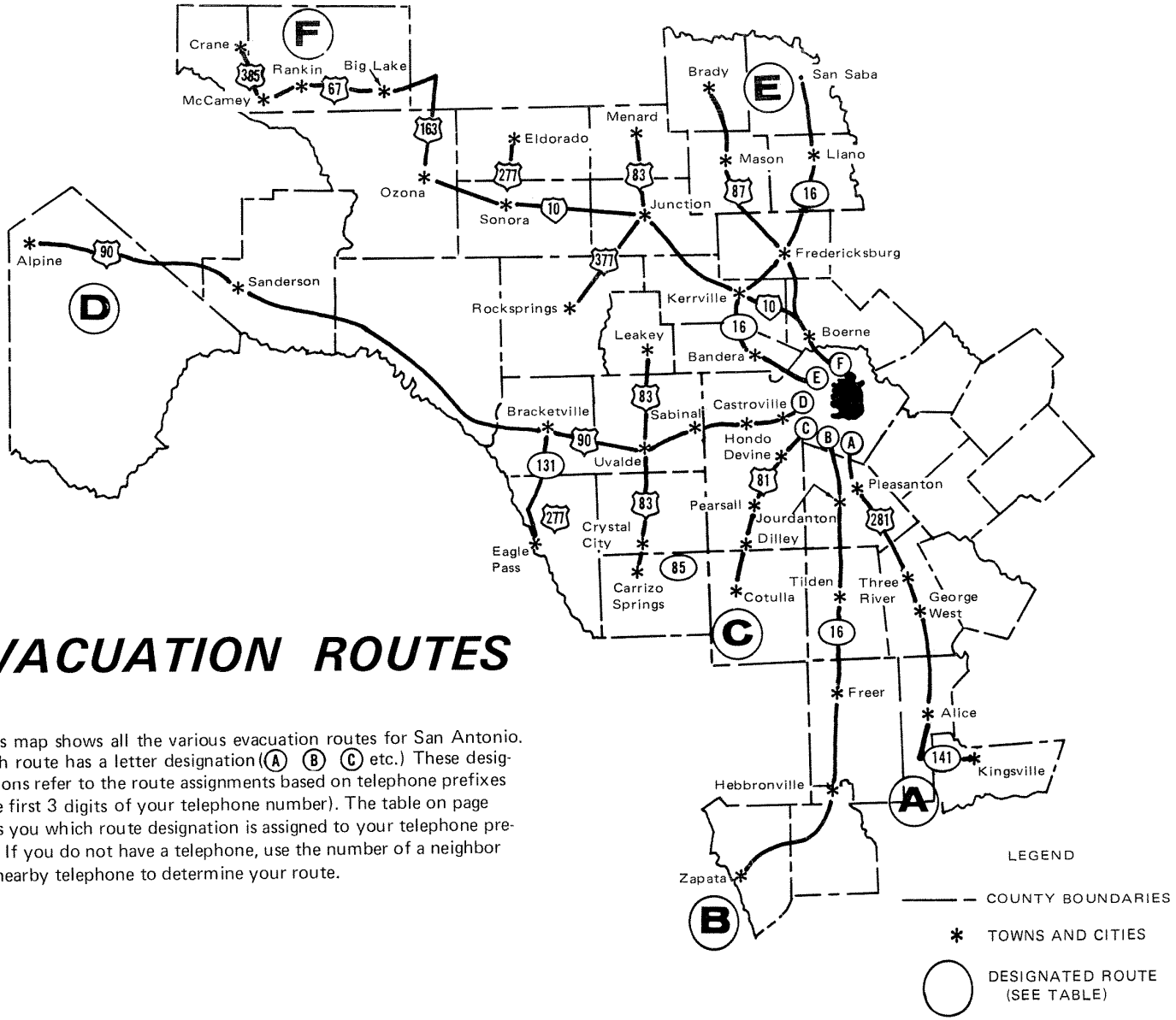
RISK AREA MAP



If You Live In This Area...

See Pages and

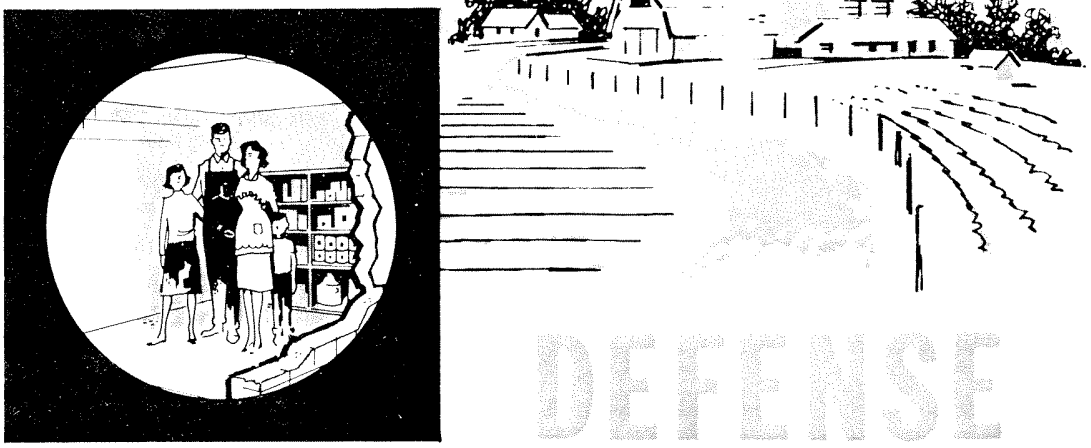
For Your Relocation Assignment



EVACUATION ROUTES

This map shows all the various evacuation routes for San Antonio. Each route has a letter designation (Ⓐ Ⓑ Ⓒ etc.) These designations refer to the route assignments based on telephone prefixes (the first 3 digits of your telephone number). The table on page tells you which route designation is assigned to your telephone prefix. If you do not have a telephone, use the number of a neighbor or nearby telephone to determine your route.

I



DEFENSE AGAINST

RADIOACTIVE FALLOUT

ON THE FARM

FARMERS' BULLETIN NO. 2107
U. S. DEPARTMENT OF AGRICULTURE

PROTECT YOURSELF AND FAMILY FIRST

If we were attacked with nuclear weapons, you, the American farmer, would be depended on to supply the food and fiber needed to keep the economy going. One of the problems you might face is radioactive fallout.

In the event of enemy attack, first provide for your own safety and that of your family and neighbors. Then take care of your livestock, your crops, and your land.

Your best protection from fallout is a specially constructed shelter or a protection area in an existing building. If fallout occurs and you have not yet built a shelter, go to the safest place you have—such as a cyclone cellar, a root cellar, or a corner of your basement. To increase the protection of your basement, shield doors and windows with concrete blocks, bricks, or sandbags. If you do not have an underground refuge, at least *stay indoors.*

Designs of five types of inexpensive family fallout shelters—one of them a "do-it-yourself" type—are presented in a publication on family fallout shelters, available from your local civil defense office or the Office of Civil Defense, Washington, D.C., 20310.

Local civil defense authorities will make every effort to let you know when it is safe to come out of shelter. Emergency information will be disseminated to the public in every possible way, including radio and television.

The recommendations in this bulletin are those of scientists, engineers, public health officials, civil defense authorities, and other specialists. Study of the effect of radioactive fallout on agriculture is a continuing project. Some of the recommendations in this bulletin may have to be changed in the light of future research.

CONTENTS

This bulletin was prepared by the Agricultural Research Service, U.S. Department of Agriculture, in cooperation with the Atomic Energy Commission, the Office of Civil Defense, and the U.S. Public Health Service.

Washington, D.C. Revised November 1965

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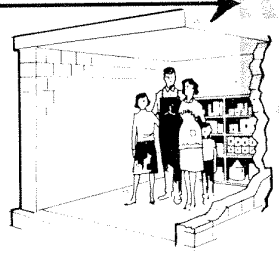
DEFENSE AGAINST RADIOACTIVE FALLOUT ON THE FARM



BACKGROUND INFORMATION

Most Americans know about the destructive power of nuclear weapons. The explosive power of the atomic bombs used in World War II was equivalent to about 20,000 tons of TNT. Since then, bombs have been developed that have explosive power equivalent to millions of tons of TNT.

An enemy attack with a nuclear weapon could cause radioactive contamination many miles downwind from the target area. Radioactive material produced by the bomb would give off destructive rays and particles that could injure—or kill—human beings and animals, and could make farmlands and crops dangerous to use. This material, when it falls to the earth, is called radioactive fallout.

Fallout could settle anywhere—even in the most remote parts of the country. If large industrial centers or missile sites were bombed with nuclear weapons, it is likely that small towns and rural areas in the downwind path would be endangered.

If a massive nuclear attack were to occur, a high percentage of our farmland could receive *early* fallout. Early fallout consists of heavy particles that are deposited within 24 hours after a nuclear explosion and usually within a few hundred miles from the explosion; the extent of its spread depends on the winds. Any part of the country could receive varying amounts of *delayed* fallout. Delayed fallout is far less serious than early fallout in that it is not a threat to national survival and shelters are not required because of it. Delayed fallout consists of the smaller particles that remain suspended in the upper atmosphere for months or even years and are carried by high-altitude winds to all parts of the earth.

After nuclear attack, fallout, if significant, would be visible, especially on polished or smooth surfaces, but the radiation from its active elements could be detected accurately only by special instruments. Because of this, your Government is preparing means of warning you if your land and home lie within the path of harmful radioactive contamination.

You can defend yourself against fallout—on your farm and in your home. The following questions and answers will help you to understand the nature of fallout, and, in the event of enemy attack, will help you to protect yourself from it.

What is radioactivity?

It is a process whereby radioactive elements disintegrate and, in so doing, release powerful electromagnetic rays like X-rays, or eject small, invisible particles of matter.

Radiation is nothing new. All living things are constantly exposed to

small amounts of radiation. We breathe and eat radioactive materials that occur naturally in the soil, water and air. We also are exposed to radiation when we have X-ray examinations. But explosions of nuclear bombs produce large amounts of radioactive elements that can affect the health of human beings and animals.

What happens when a nuclear bomb explodes?

The explosion produces *blast, heat, initial radiation, and residual radiation.* The first three occur almost instantaneously with the explosion, and are destructive in the target area and for some miles around. The fourth—residual radiation, which comes mostly from fallout—has a delayed and longer effect, and may be dangerous over a much larger area.

What is fallout?

Fallout is radioactive material produced by a nuclear explosion; this material falls to earth from the upper air. When a bomb explodes *close to the earth,* large quantities of pulverized soil are drawn up into the ascending cloud and may be carried to heights of 15 miles or more. After mixing with the highly radioactive residue material of the bomb, the finely divided soil falls back to earth and produces radioactive contamination.

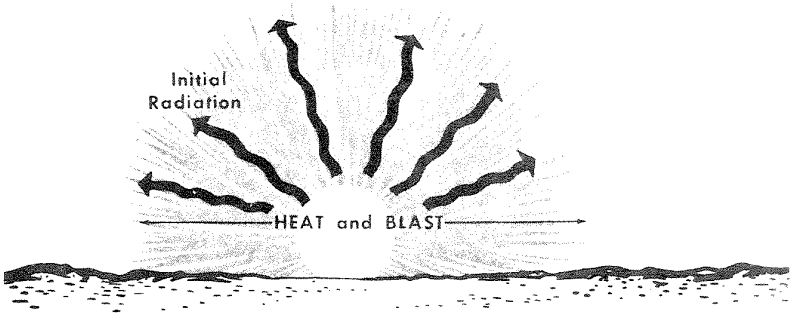
Large particles of this material fall close to the point of the explosion. Small particles fall more slowly, and winds carry them farther as they descend. Significant amounts of fallout do not arrive outside the blast area earlier than about one-half hour after an explosion. Fallout of major concern will have been deposited within 1 day after the explosion and may extend several hundred miles downwind. It may eventually blanket thousands of square miles if the bomb was large and the winds are strong.

Why is fallout dangerous?

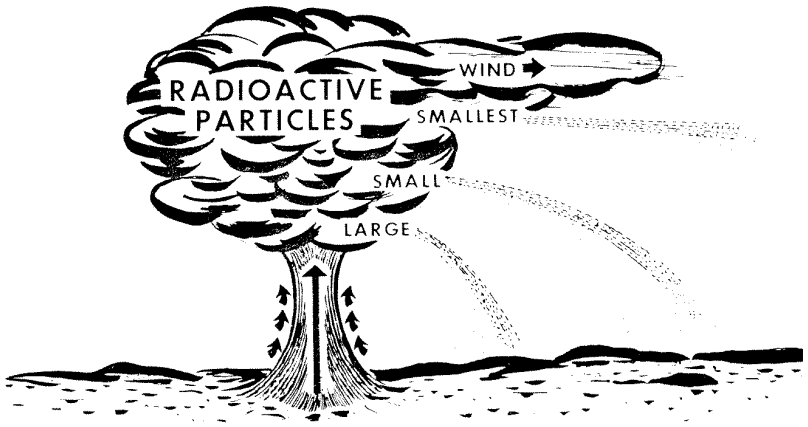
If an area is highly contaminated by fallout, radiation may be a threat to human beings, animals, and crops. Fallout can contaminate food, water, buildings, yards, and fields, and make them unsafe to use for varying periods of time. Generally, food and water are not difficult to decontaminate, nor are buildings or paved areas. Yards and fields may be very difficult.

Some of the rays can penetrate the body and cause serious internal damage. Other rays cannot penetrate deeply, but can cause skin damage similar to a deep burn if, in the early period after detonation, radioactive fallout is deposited in significant amounts on the bare skin and allowed to remain there.

All radioactive chemical elements



A nuclear explosion produces blast, heat, and initial and residual radiation; residual radiation comes mostly from fallout.



Large quantities of pulverized soil are drawn up into the ascending cloud and may be carried to heights of 15 miles or more.

(radioisotopes) in fallout, especially radioactive strontium and radioactive iodine, will cause internal radiation damage if taken into the body in sufficiently large quantities. This hazard is not comparable to the hazard from external exposure. Effects of internal radiation damage probably would not be observed until long after exposure. For this and other reasons, the danger from internal radiation is considered to be less serious than from external radiation. Also, internal exposure may be prevented.

To understand the nature of fallout, you need to know that fallout contains a mixture of long-lived and short-lived radioactive materials, each of which loses activity, or decays, at a specific rate. Scientists usually express the decay rate in terms of the half-life of the material. The half-life is the time required for the radioactivity of a material to reduce to one-half its initial value.

Strontium 90 is among the most important of the long-lived group. Iodine 131 is an example of an important, relatively short-lived radioisotope.

Chemically, strontium is similar to calcium. For example, after it enters the body of a dairy cow, a small part is secreted in milk, a small part goes into the muscles, but most collects in the bones. Strontium 90 has a half-life of about 28 years—it continues to lose one-half of its remaining radioactivity during each 28-year period that passes—and sufficient amounts of it in bone can cause bone cancer. As mentioned earlier, however, this is less of a problem than the danger from external exposure.

Iodine 131 has a half-life of about 8 days, and therefore is dangerous for a much shorter time than radioactive strontium. After entering the body, some radioactive iodine collects in the thyroid gland. If too much of it is present in the body, it will damage the thyroid cells. This is more serious for young children, especially babies, since their thyroid glands are small and therefore a greater percentage of the cells would be damaged. Radioactive iodine is secreted in the milk of cattle; it thus is a particular threat to young children drinking milk from *cows grazing on contaminated pasture* during the first few weeks following a nuclear attack.

What determines the size of the fallout area?

Fallout can be a serious hazard to communities that are many miles be-

yond the area affected by the explosion. During a 1954 test at the Eniwetok Proving Grounds in the Pacific, the area of heavy fallout extended about 140 miles downwind from the point of explosion, and was up to 20 miles wide.

The extent and location of a fallout area are determined by—

- Size of the fallout particles.
- Power and design of the bomb.
- Altitude of the bomb burst.
- Atmospheric conditions—including precipitation and direction and speed of winds from the surface up to about 80,000 feet.

Because of the variety of factors, fallout hazard cannot be estimated accurately in advance. However, the area of probable fallout and the speed with which fallout will arrive can be estimated. Data for preparing these forecasts are released twice daily by the U.S. Weather Bureau and are available to civil defense authorities.

After a bomb is exploded close to the ground, a large radioactive cloud rises to a high level in the atmosphere. Some particles are blown downwind and crosswind, in the area of the target. Strong winds may spread fallout over long distances downwind.

How long is fallout dangerous?

The greatest hazard from radiation exists during the first few days following heavy deposit of fallout. The hazard decreases with the passage of time, as radioactivity of materials decays and intensity of radiation decreases.

Particles reaching the ground soon after the burst are highly radioactive, while those that remain in the air for longer periods lose much of their radioactivity before they settle to earth.

The total radiation hazard of newly formed (fresh) fallout decreases rapidly at first because this fallout contains many radioisotopes that have short half-lives. The radiation hazard decreases less rapidly after the shorter-lived elements have lost most of their radioactivity.

The radiation level from any radioactive material reduces with time. How fast this reduction is depends on design of the bomb that produced the fallout, altitude of detonation, type of material in the environment at the place of detonation, and whether fallout was from two or more bombs detonated some time apart. None of these things can be known accurately in advance. However, the rate of radiation reduction may be approximated by use of the 7:10 rule of thumb: Each 7-fold increase in time after detonation, gives a 10-fold reduction in radiation level.

You must keep in mind that this rule does not refer to intensity of radiation at a particular place unless the radioactive material has been undisturbed during the time being considered. The 7:10 rule of thumb must not be applied in a particular place until all fallout has settled. For example, fallout deposition that began at 3 hours after detonation might not be completed until 3 hours later, so the rule should not be used until 6 hours after detonation.

How can I protect my family and myself from radiation?

You can limit exposure by staying in an adequate shelter. Three or more feet of packed earth or concrete provide excellent shielding from radiation. An ordinary frame house will give some protection—a masonry house even more. Appreciable protection would be provided in a basement below ground level. For assurance of adequate protection, however, a specially prepared fallout shelter is required.

How will I know if fallout is coming?

Certain radio stations have been authorized to operate during a national emergency. If an enemy attacks, these

To protect your family, build a fallout shelter.

stations will broadcast official information and instructions. Local or county civil defense officials can tell you what stations in your area have been authorized to make emergency broadcasts. If you are not within range of a station authorized to make such broadcasts, follow whatever preattack instructions you receive from your local, county, or State officials.

If a nuclear bomb detonates within a hundred miles or so, you will probably see the flash or hear the blast.

Later, you will receive instructions from local civil defense authorities. You should not wait for such reports before taking protective action. They probably would not arrive in time. Later, the monitors will determine the level of the fallout hazard and indicate what further precautions, if any, should be taken. (See p. 12 for facts about monitoring service.)

Radiation can be detected and measured only with proper instruments. However, after nuclear attack, dust clouds or unusual dust concentrations in the atmosphere should be assumed to be radioactive.

PROTECTING LIVESTOCK

How will fallout affect unprotected livestock—that is, animals in fields, pastures, and other open areas?

Fallout may be dangerous to cattle, sheep, horses, pigs, and other livestock as well as to human beings. Radioactive materials in fresh fallout can contaminate the immediate environment and give off rays that can penetrate deep into the body. This is the major source of danger for livestock. Animals can also suffer skin burns if fallout settles in the coat. Skin burns could produce considerable discomfort, but would not endanger the lives of the animals.

Animals are about as sensitive to radiation damage as human beings; to survive, animals need the same protection as human beings.

When livestock must graze on fallout-contaminated pasture, supplemental feeding from noncontaminated forage can materially reduce the daily dose of radioactive material the animals will eat. Stored or stacked hay, ensilage from either silo or trench, and stored grain are safe supplemental feeds when they are protected from fallout contamination. When no shelter is available and when the level of radiation is only moderate, or food resources are scant, growers should, if possible, supply supplemental feeding and limit the grazing time.

When meat and dairy animals eat contaminated feed, some radioactive elements are absorbed into their bodies. Thus, man's food supply of animal products can become contaminated with radioactivity.

How will fallout affect sheltered livestock?

Livestock housed in barns and other farm buildings during fallout have a better chance of surviving effects of radiation than those that are not sheltered. A reasonably well-built shelter reduces intensity of external radiation and prevents fallout from settling on

the animals' bodies. It also prevents animals from eating contaminated feed.

What is the best way to protect livestock from fallout?

Move them indoors as soon as possible. If you do not have adequate facilities to house all animals, put some of them near farm buildings or in a small dry lot. Under these conditions the amount of space per animal in a barn should be reduced to the point of overcrowding. The limiting factor is ventilation and not space. The advantage is that the animals tend to shield each other enough that more will survive under crowded conditions than under normal housing. Large, protected self-feeders and automatic livestock waterers can supply uncontaminated feed and water.

Areas within movable fences, and other small fenced areas that have covered feeders or self-feeders, can provide emergency confinement for farm animals after early external radiation intensity has decreased through decay.

Empty trench silos can be converted to livestock shelters by constructing a roof over the trench and covering it with earth.

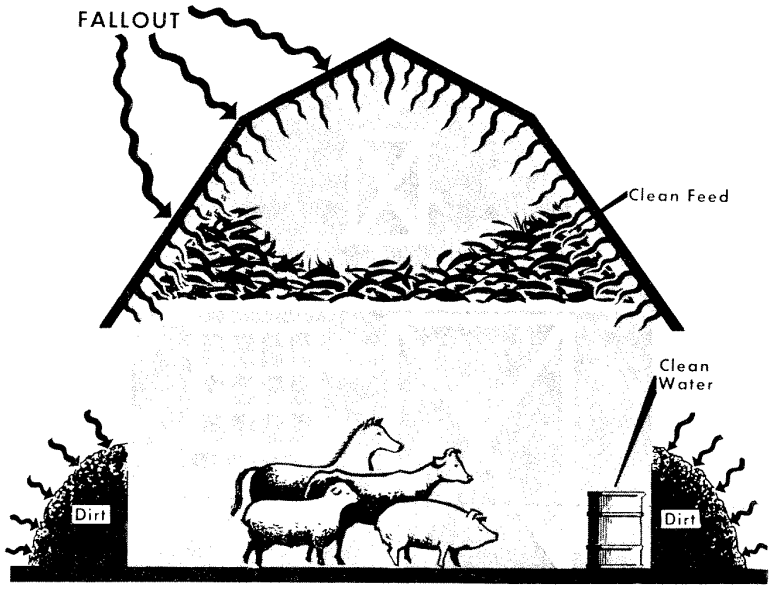
Once fallout occurs, you should not attempt to protect livestock unless local civil defense authorities tell you that you will be safe when doing so.

Get your dairy cattle under cover first. (See p. 7.)

What water can I give livestock after fallout?

Water from a covered well, tank, or cistern, or from a freely running spring, is best. River water or pond water is less safe, but if necessary it could be used after fallout has occurred. In a few days it would be safe. If, however, it should rain during this time, livestock should not be permitted access to pond water for an additional few days.

Usually, fallout particles would settle promptly and soluble radioactive materials would diffuse in the water, reducing the contamination at the surface. If the water was constantly replenished from an uncontaminated



Livestock housed in barns during fallout have a better chance of surviving effects of radiation than those that are not sheltered.

source, radioactivity would be diluted rapidly.

To prevent contamination from fallout, do not add water to covered tanks unless the water is from a protected well or spring; first use the water originally present in the tanks.

Could I use water in an exposed pond?

Water in an exposed pond would be contaminated, but usually the level of contamination would decrease rapidly. Such water could be used for surface irrigation. It could also be used to wash off farm buildings and unsheltered livestock. Obtain drinking water for livestock from another source if possible.

What feed can I give livestock after fallout?

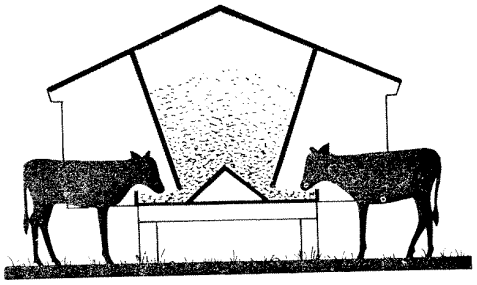
To protect feed adequately, cover it. Fallout is like dust or dirt; a cover will prevent it from coming in contact or mixing with the feed.

Grain stored in a permanent bin, hay in a barn, and ensilage in a covered silo are adequately protected. They can be used as soon as it is safe to get to them following fallout.

A haystack in an open field can be protected with a tarpaulin or similar covering.

If possible, give your livestock feed that does not contain fallout material. Fallout particles that settle on hay, silage, or a stack of feedbags will contaminate only the outer parts. You can remove the outer layers or bags, and use the inside feed that is unaffected.

You will be notified if local civil defense and agricultural authorities who measure concentrations of fallout consider the forage growing in your area is harmful. However, this advice might come too late in heavily contaminated areas. As a precautionary measure, house the livestock and do not let them graze.



You may have to give cows contaminated feed if no other feed is available. The milk from these cows should not be used by children, but when the cows are back on clean feed, the amount of radioactive material in their milk will progressively diminish.

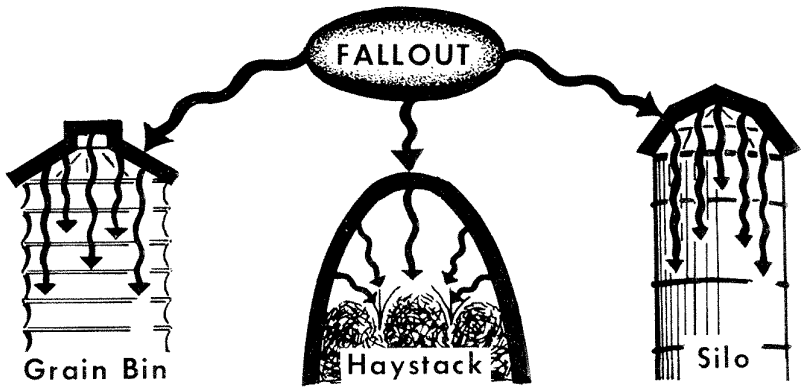
What can I do with contaminated feed?

How long feed should be stored depends on the type and concentration of the radioactive materials. If you have an alternate supply, do not use contaminated feed until told by authorities that it is safe to do so; then be sure to follow the precautions they may recommend.

Should dairy cows receive special treatment?

Yes. Because radioactive materials can be transferred to milk, which will be a critical product during an emergency, make a special effort to protect cows from fallout. Remove milking cows from pasture and feed them stored rations during the period of fresh fallout and for several weeks after. In this way, you will prevent iodine 131 from occurring in the milk, or reduce it to insignificant levels.

Give cows preferred shelter and clean feed and water. If you can, milk them before fallout occurs; you may not be able to do so for several days afterward. If you have calves on the farm turn them in with the cows. This will help prevent mastitis and conserve all the feed for the cows. Reduce



Cover—a permanent bin, covered silo, or even a tarpaulin—will prevent fallout from coming in contact or mixing with the feed.

amounts of water and concentrated feed to maintenance levels.

Construction plans are available through State extension agricultural engineers for a combination dairy barn and family fallout shelter. Although construction of this type is costly, such a facility might be considered for the protection of highly valued breeding stock.

The plans are designed in accordance with milk production ordinances. They provide for (1) a year-round production unit that requires minimum change for emergency use, (2) a built-in family fallout protection area that allows the operator to care for animals during a fallout emergency, (3) all stored feed that is manually accessible to be inside the barn, (4) stored hay and straw for use as shielding, (5) temporary housing, feed, and water for other livestock, (6) an auxiliary generator for assuring electric power, and (7) a water supply inside the barn.

What measures should be taken to protect poultry?

Measures for protecting poultry are the same as those recommended for other farm animals.

Poultry are somewhat more resistant to radiation than other farm animals. Since most poultry are raised under shelter and given feed that has been protected or stored, and since poultry can be grown rapidly, they are one of the more dependable sources of fresh foods of animal origin that may be available following a nuclear attack.

Hens that eat contaminated feed will produce eggs that contain some radioactive elements. Radioactivity in eggs decreases shortly after the hens are removed from the contaminated environment and given uncontaminated feed and water.

What animal food products are safe to market after fallout?

You will receive specific instructions from local civil defense authorities based on amount of fallout received. *Do not destroy any animal food products unless spoilage has made them inedible.* Milk should be safe to use if it is from cows that are adequately sheltered and protected and are fed rations of stored and protected feed and water. Milk from a fallout area where cows are not adequately protected or fed stored feed should not be given to children until civil defense authorities approve. Milk contaminated with iodine 131 can be processed into butter, cheese, and powdered or canned milk, and stored for a period of time to allow the radioactivity to decay.

Food animals whose bodies have been exposed to external radiation can be used for food if they are slaughtered before the onset of signs of radiation sickness. Also, they can be used after they have recovered from the ensuing illness. The same rules that govern the slaughter of animals sick from any cause should be followed. Care must be taken to prevent edible parts of the carcass from being contaminated by radioactive materials contained on the hide and in the digestive system.

What do I do if animals die from fallout radiation?

Some of your animals may be affected so severely by radiation from fresh fallout that they will die in a few days or weeks after being exposed. *Do not slaughter any of your livestock unless you are told to do so by local civil defense authorities or USDA county defense boards.* (For a description of the functions of the USDA county defense boards, see p. 11.)

Bury animals that die. These carcasses usually are not dangerous to surviving people or animals by the time it is safe to work outside.

Is it possible to decontaminate livestock and farm buildings that have been exposed to fallout?

If there is fallout on the animals' skins, the radioactive material can be washed off with water. It is not necessary to use clean water sources for this purpose. Take care to avoid contamination runoff.

Civil defense authorities or USDA county defense boards may advise you on decontamination procedures for your farm buildings.

In handling animals, wear coveralls, gloves, and boots to prevent contaminating yourself. Cleaning or disinfecting buildings will not destroy radioactivity. However, cleaning can be useful in moving radioactive materials to a place where radiation will be less harmful. In cleaning, be careful to avoid contaminating yourself.

PROTECTING LAND AND CROPS

What are the main consequences of heavy concentration of fallout on crop and pasture lands?

- Farm workers may not be able to manage and cultivate land safely for some time, because of radiation hazard.
- It may not be advisable to permit animals to graze, because of the danger of radiation.
- Fresh fallout would provide surface contamination on all plants, resulting in potential hazard to human beings and animals consuming them.
- Radiation from fallout deposited on the leaves or the ground may damage the crop.

How long would fallout affect cultivated and noncultivated lands?

It would depend on the abundance and type of radioactive materials in a given area.

In the event of nuclear attack, radioactive iodine would be the most critical single factor in the contamination of milk during the first few weeks. After the first 60 days, the principal hazard would arise from strontium 89 and strontium 90. Strontium 89, however, will have virtually disappeared 17 months after its formation.

Like other radioactive isotopes of fallout, strontium 90 falls on the surface of plants and can be consumed with foods and forage. Some of it is deposited directly on the soil or washed into it, remaining indefinitely—for all practical purposes—in the top several inches of uncultivated land.

Because it is chemically similar to

calcium, radioactive strontium would be absorbed by all plants. Plants growing in soils deficient in calcium would absorb more radioactive strontium than those growing in soils abundant in calcium, other conditions being equal.

Are there soil treatments for reducing the fallout hazard on land?

Yes, but soil treatments should be given only after responsible authorities have carefully evaluated the situation and declared a state of emergency. The most effective treatment could be costly, and suitable only for intensively used land.

Other methods involve changes in generally accepted farm practices. Some measures could be simply an improvement over local conditions and procedures. For example, liming of acid soils could reduce the uptake of radioactive strontium in crops grown on those soils.

USDA soil scientists in the USDA county defense boards will provide guidance to farmers in determining best utilization of their land following nuclear attack.

Any use of the land must wait until external radiation levels are low enough for persons to work safely outdoors.

Would fallout permanently affect pasture grass and forage crops?

If fallout is extremely light, the pasture would be usable immediately. It is difficult to set an exact external dose rate at which it would be safe to return the animals to pasture, but if the dose for the first week of stay did not exceed 25 roentgens all animals would survive and could be handled with safety.

If fallout is heavy, external radiation would prohibit use of the pasture. A heavy deposit of fallout would spread short-lived and long-lived radioactive particles on the pasture and forage crops. Radiation might cause visible injury to plants. Some plants might die.

Existing growths of alfalfa and other forage crops might not be usable because of radiation hazard. If a radiation survey should indicate that contamination level is high, existing growth should be removed as close to the ground as possible and discarded; succeeding growths should be used only after examination for radioactivity. If the soil is acid, a top-dressing of lime would help reduce uptake of radioactive strontium in succeeding growths.

Livestock could be allowed to graze on lightly contaminated pasture after a waiting period that varies from one to a few weeks, the length of time depending on the degree of contamination.

Once it is safe to work the land, a periodic check on pasture and produce in affected areas would provide the best safety guide to their use.

Would fallout affect my system of farming?

It could. Seriously contaminated land may need to lie fallow for as long as a season. After this, fallout may require a change to nonfood crops or to food crops that do not absorb large amounts of radioactive materials from the soil. Alfalfa, clover, soybeans, and leafy vegetables have a greater tendency to absorb long-lived radioactive strontium than cereal grains, grasses, corn, potatoes, and fruits. Guidance on suggested crops to plant will come from USDA county defense boards.

Would fallout reduce economic productivity of crop and pasture lands?

Fallout might reduce such productivity in several ways: (1) Crop and soil management could be impeded because of danger from external radiation; (2) some crops might be killed

by contamination; (3) other crops might become contaminated to a degree where they would be unmarketable; and (4) economic value of food grown on contaminated land might be less than that of other competitive crops.

What are the effects of fallout on growing vegetables?

Growing vegetables that are exposed to heavy fallout may become highly contaminated. Leaves, pods, and fruits that retain fallout material should be cleaned before being eaten. Washing is probably the most effective measure, just as it is the best way to clean garden foods that get dirty from any other cause. Radiation from heavy fallout may affect plant growth.

Roots and tubers absorb little contamination from fallout before it is mixed with the soil. The normal cleaning or peeling of underground vegetables such as potatoes or carrots would be adequate for removing fallout.

What are the effects of fallout on fruits?

If fallout is heavy, ripe fruits may be lost because of the personal hazard involved in harvesting them. Fruits that do not have to be picked immediately can be saved. They should be washed before they are eaten.

Would fallout limit use of plants for human food?

It depends on the extent of radioactivity.

Leafy vegetables, such as lettuce, should not be eaten unless they are thoroughly washed, or are known to be free of hazardous amounts of radioactive materials.

What special precautions should be taken for workers in the fields?

You should remain indoors until danger from fallout has diminished and you have learned from local officials that it is all right to work outdoors.

EMERGENCY DEFENSE SERVICES

By order of the President, the Secretary of Agriculture has put into effect defense services to protect farmers, their families, their livestock, and their agricultural productivity in event of a national emergency. The wide scope of these services enables them to function at all levels—national, State, county, and farm.

County Defense Boards

In preparing for a national emergency, the farmer may obtain guidance and assistance from his USDA county defense board. More than 3,000 of these boards are operating throughout the Nation. The USDA county defense boards receive direction from USDA State defense boards.

A USDA county defense board is composed of key USDA representatives in the county. The county office manager of the Agricultural Stabilization and Conservation Service usually serves as chairman. Other board members may include representatives of the Cooperative Extension Service, the Farmers Home Administration, and the Soil Conservation Service. Representatives of the Forest Service, the Agricultural Research Service, and the Consumer and Marketing Service, where available, are also members of the board.

Each USDA county defense board is equipped to serve the farmer in many ways. In most counties, the

board chairman is responsible for food production programs. He will see that guidance is available in emergency farming practices and in conserving farm equipment, fuel, and manpower; he also will help obtain essential services or material.

The Soil Conservation Service member of the board will advise and assist in the proper use of land and water; and the Farmers Home Administration member will help the farmer in credit problems that may arise. The county extension agent will provide education on survival practices and protective measures for the farmer, his family, and his livestock.

The board chairman, or one of the board members, will advise farmers regarding *other programs of USDA agencies that are not represented on the board.* This might include, for example, assistance in protection of livestock and crops against the spread of disease or rural fire defense. Generally, the board chairman is responsible for USDA programs relating to food processing, storage, and distribution.

USDA county defense boards will work closely with and support county authorities. Farmers can look to their local county civil defense officials as well as USDA county defense boards for guidance in national emergency programs.

Radiological Monitoring

Radiological monitoring is measurement of the levels of exposure by radiation present in nuclear fallout. Special instruments and people trained in their use are required for this work.

Monitoring services would be needed in the early period following a nuclear attack to determine intensity of radiation on the farm. If this intensity were high, monitoring services would be needed later to determine when farming activities should be resumed. Examples of this monitoring service are detection and measurement of radiological contamination of farmlands, harvestable crops, forest land, and water and protection and handling of farm animals.

State and local governments are responsible for establishing comprehensive radiological monitoring systems in inhabited and habitable areas to measure and report radiation intensities. This monitoring provides the basis for survival and recovery. USDA is directly responsible for certain specialized monitoring—

- At major meat and poultry inspection installations.
- Of forest lands, agricultural lands, and water.
- Of federally owned stored food.

One or more USDA monitoring stations are established in each county in the United States. They provide capability to perform monitoring assigned to USDA, and they will also supply part of the radiological information needed for planning and directing local survival and recovery operations.

Office of Civil Defense guidance and the USDA Radiological Monitoring Handbook provide details for the necessary coordinated effort at the county level. Simply stated, county civil defense and the USDA county defense boards are responsible for joint planning and postattack advice to the farm population on precautions to take to minimize radiation exposures associated with farm work; county civil defense is responsible for most of the monitoring, reporting, and analysis of the data; and the USDA county defense board applies USDA guidance adjusted to local conditions in recommending appropriate—

- Care or disposition of livestock.
- Use of agricultural lands and water.
- Use or disposition of agricultural commodities.

If you have a question about the detection of harmful radiation, you should contact your local civil defense official or the chairman of your USDA county defense board.

Rural Fire Defense

Disastrous fires could follow a nuclear attack. To fight them effectively, a civilian rural fire defense has been established under the overall leadership of the U.S. Department of Agriculture, through its Forest Service. This agency is responsible for pre-emergency and emergency operations covering:

1. Prevention and control of fires in rural areas caused by effects of enemy attack (in cooperation with State Government and appropriate Federal agencies).

2. Determining damage to National Forests and other forested areas resulting from enemy attack.

The USDA program of fire protection on wild and rural lands provides leadership and guidance to the States. It involves about 92 percent of the Nation's land area. In carrying out this program the Forest Service relies heavily on the cooperation of State and private agencies and other Federal agencies that have rural fire protection capability.

State civil defense organizations will assist local fire-defense agencies in planning, organizing, equipping, and coordinating fire-defense activities.

Effectiveness of national and State fire-defense organizations depends on volunteers. These organizations can function more effectively if rural volunteer groups are trained and prepared. Individual preparations serve a dual purpose. For example: A fire lane around a farm forest or grain field protects the owner's property in peace and in time of emergency and also contributes to the local fire-defense effort.

In the American tradition, it is important that neighbors be prepared to help each other. Every farmer and rural resident should know (1) the basic rules of fire prevention, and how to apply them; (2) how to report fires; (3) how to extinguish small fires; and (4) how best to assist fire-protection organizations.

If you need fire-defense information, consult your State forester or local official in charge of rural fire defense, or consult the chairman of your county defense board.

MORE POINTERS ON PROTECTION

What you can do now . . .

- Build a family fallout shelter, or pick the safest place in or around your house and add protection to it. Maintain a 2-week emergency supply of food and water in or near your shelter or protection area. . . . Obtain a disaster first aid kit and store it in your protection area. . . . Obtain a battery radio. You may need an outside aerial to get adequate reception. Try it and see . . . . Obtain a civil-defense-approved radiation-detection instrument.
- Plan an emergency water supply and a sewage disposal method for your home protection area. They should not depend on electric power since it might fail as a result of the attack.

If you have a few hours' warning . . .

- Make arrangements for the safety of your family and yourself.

- Confine all livestock, preferably to buildings, or at least in drylot.
- Bring feed into buildings, or cover it with tarpaulins if it is left outdoors.
- Store as much water as possible for livestock, especially if the water is coming from ponds or streams or through water mains. Cover wells, rainbarrels, and tanks.

If you have a few months' warning . . .

- Put your silage pits and haystacks near buildings and cover them with tarpaulins.
- Keep your well clean and covered. Put some rainwater barrels and other containers near buildings; fill them regularly with clean water and keep them covered.
- Store seed and grain in weatherproof buildings.
- Stock up on packaged, canned, and bottled foods.
- Have a satisfactory storage space for fuel, and maintain an emergency supply.
- Make sure that you have a place to confine livestock and poultry, preferably a place that has an overhead cover.

During and after fallout . . .

Even without specific warning from civil defense officials, you can tell if a serious fallout hazard exists in your area. Serious levels of fallout radiation will not occur without being accompanied by visible quantities of fallout material.

- If you can detect no dustlike fallout material on smooth surfaces such as automobiles, sidewalks, or window ledges, you may assume your area has been spared.
- Wash your face and hands and brush your clothing if you were outside when fallout was being deposited or if you go out into a dusty area afterwards.
- Food or water inside a closed area in a house or inside a shelter would not be contaminated. Uncovered food brought in from a contaminated area should be cleaned.

  Milk—Should not be used for infants if the cattle producing it have grazed on contaminated pasture or their feed was highly contaminated.

  Eggs—All right to use.

  Potatoes and root crops—Normal cleaning is adequate.

  Green vegetables—Wash carefully or remove outer layers if they have fallout material on them.

  Peas and beans—Normal cleaning is adequate.

- Wash hands thoroughly before you eat.
- Wear protective clothing—hat, coat, boots, gloves—the first few days you work outdoors. If you are plowing or cultivating dry land, or if you are harvesting corn, wear a dust filter over your nose and mouth; even a handkerchief will be of some value.

The U.S. Department of Agriculture has produced two motion picture films on defense and radioactive fallout:

"Fallout and Agriculture" (16 mm., sound, color, 23 minutes).

"The Safest Place" (16 mm., sound, color, 12½ minutes).

These films are available for loan from the film library of your State land-grant college. For the address of the land-grant college in your State, write to Motion Picture Service, Office of Information, U.S. Department of Agriculture, Washington, D.C., 20250.

J

WORKING IN THE REAL WORLD: MEDIA RELATIONS

Sooner or later--probably sooner--there will be a telephone call right in the middle of one of your most hectic days of crisis relocation planning. It will be one of the local newspaper, radio, or television reporters who wants to know "all about this CRP thing we've been hearing about."

What do you do then?

Will you drop the ball, clam up or evade his questions, and make an enemy of one of the persons in the community who can be your most helpful supporter..or worst adversary? Or will you move ahead with confidence and a measure of understanding of what it is that the reporter needs, and how you can help him, while helping yourself?

Whether you like it or not, when you're doing the public business, and particularly when you are a lone individual in a community working on a project like CRP which is not the ordinary kind of local government activity, you're news. So, you're in the public information business as well as planning.

The most important quality to bring to your side of the dialogue with a reporter is an attitude of openness and helpfulness. If you can't or won't provide the reporter with answers to reasonable questions, then he will go elsewhere to persons less qualified and knowledgeable to pick up his information on CRP. The result will be <u>mis</u>information, or only part of the story, reaching the public. This, in turn, will upset the local officials with whom you must work, and impede your progress.

When the reporter interviews you, answer his questions in a cooperative way. Provide detail if asked, and supplementary information if you believe it will be of interest. Above all, be sure the information you provide is accurate. If you don't know the answer to a reporter's question, say so, and offer to get the information. Don't try to bluff it out, for a good reporter is skilled in detecting when someone doesn't know the answers. Keep in mind that media people, like civil preparedness personnel, see themselves as performing a public service. If properly approached, they will usually be willing allies in telling the public about local readiness measures.

In addition to the right attitude, you should also be generally familiar with the differences between the various media, their special requirements and capabilities, and any special ground rules that apply. A good way to start

gaining such practical knowledge is to read the attached handbook in this Tab. A Public Information Guide for Civil Preparedness Coordinators, published by the United States Civil Defense Council in cooperation with the Defense Civil Preparedness Agency. Public information techniques are virtually the same for local civil defense coordinators and CRP planners working in a local community.

Case Studies in Media Relations

The best way to understand the give-and-take of effective media relations is to study two actual contacts with media in Denver, Colorado by DCPA Region Six personnel pertaining to the CRP prototype project at Colorado Springs, and covering a period from February to April 1976.

CASE STUDY: THE ROCKY MOUNTAIN NEWS

Situation #1

The telephone rings. Your secretary tells you that Jack Olsen of the Rocky Mountain News is on the line and wants to talk to someone about shelter crackers. You pick up the phone and Olsen says, "Say, its been a long time since we have looked into the fallout shelter situation. Whatever happened to the shelter supplies; are the biscuits still good?"

Question: What would you tell him?

Response #1

Yes, most of the biscuits are still edible, but there is a lot more going on in civil preparedness than shelter supplies. Have you heard about our Crisis Relocation Planning project in Colorado Springs?

Discussion #1

This response to the reporter was critical. If Jim Peterson had simply engaged in a discussion of crackers with the reporter and not mentioned CRP, none of the events in this case history would have occurred. His response immediately interested the reporter who requested an interview and an opportunity to learn more about the project. Peterson, who took the call, made an appointment for the reporter to see the Regional Director.

Situation #2

Olsen arrives for his interview. He met with Dave Harrison, the Regional Director, and Peterson, of the Systems and Plans Division. Peterson escorted him on a tour of the Federal Regional Center (FRC) to familiarize him with the peacetime and emergency role of the facility. This helped to establish a background for the discussion. When they sat down for the interview Olsen again raised the question about supplies.

Question: What would be your response? What handout material would you have available to give to the reporter?

Response #2.

Harrison turned the discussion to Crisis Relocation Planning. He explained what Russia is doing in this area, how long they have been doing it, and that the estimated annual expenditure in the Soviet Union is $1 billion annually. He provided the reporter with statements by Dr. James R. Schlesinger, DCPA Director John E. Davis, and Paul Nitze as authorities. He also loaned the reporter a copy of an English translation of a Soviet civil defense training manual. He answered the reporter's questions at length.

Discussion #2.

The key to working with a reporter is to establish an atmosphere of mutual trust. Harrison did this by providing complete and honest answers to questions. He provided assistance to the reporter by furnishing him with official statements on CRP which the reporter could use as source material and for quotes. The tour of the facility also helped the reporter. While honesty and openness may not always achieve what we desire, they are the only attitudes for government officials to take when meeting with the press and public. Following the interview with the reporter, Harrison alerted Brig. Gen. William Weller, Colorado Adjutant General and Director of Disaster Emergency Services, of the interview and advised him that he might be contacted. Col. Jack Allen, then Civil Defense Director of Denver, was also advised.

However, Region Six failed to advise Floyd Pettie, the Colorado Springs Civil Defense Director about the story, and this was a major mistake. The Denver paper circulation area is broad and includes Colorado Springs. When the article was published on the front page of the Rocky Mountain News on Sunday, February 29, 1976, Pettie was embarrassed because he had not had an opportunity to advise his Mayor and City Manager about the article in advance of publication. He should have been fully advised about the story. (See the objective, prominently displayed story, Figure 1.)

FIG. 1

Rocky Mountain News

Denver's Morning Newspaper — Reg. U.S. Pat. Off. — Colorado's First Newspaper—Founded in 1859

117TH YEAR, NO. 313 — Published by Denver Publishing Co. Second class postage paid at Denver, Colorado — DENVER, COLORADO 80201, SUNDAY, FEB. 29, 1976

Major shift in civil defense strategy

Plans to evacuate Denver, Springs developed

By JACK OLSEN JR.
News Staff

All lanes of Interstate 70 would be made one-way going west from Denver. Supermarket chains and gasoline wholesalers would reroute their loaded trucks to predesignated towns in rural counties.

Colorado state patrolmen would move to set up checkpoints on roads leading out of Denver, Colorado Springs and Pueblo. Travel and supply instructions for the public would be printed in newspapers and broadcast on television and radio.

In 72 hours, more than 75 per cent of the population of the metropolitan "risk areas" would be moved to distant "host counties."

Those are the essential elements of an elaborate civil defense evacuation plan — the result of a major change in national civil defense thinking — being developed for Colorado by federal and state authorities.

Probably within 18 months, according to the U.S. Defense Civil Preparedness Agency in Lakewood, the President will have the option of evacuating Denver and Colorado Springs within 72 hours in the event of a serious international confrontation, such as the Cuban missile crisis of 1962.

Similar three-day "crisis relocation" plans are being developed throughout the nation. Former Defense Secretary James R. Schlesinger launched the program secretly two years ago and publicly without fanfare last March to meet what he described as the threat of already established city-evacuation plans in the Soviet Union.

In essence, Schlesinger said, if the Soviets started evacuating their cities during an international crisis, the United States would be at a strategic disadvantage if it didn't also.

In a federal study based on intelligence estimates, released last April, the Defense Department publicly identified 400 areas in the nation that an enemy probably would try to hit with nuclear missiles; they surround 150 military bases, stations or missile silos, including the Warren Air Force Base complex in the "Three Corners" area of Wyoming, Colorado and Nebraska. And there were 250 production, supply and transportation hubs, including Denver, Colorado Springs and Pueblo.

Colorado Springs was one of 10 cities quietly chosen two years ago for prototype crisis relocation planning. A full-time, federally paid planner, Frank Hubka, attached to the Colorado Department of Military Affairs, has been working on the Colorado Springs evacuation plan for more than a year. He has had detailed meetings with city officials and with commissioners of the prospective "host counties" to the southwest, which would be called upon to absorb the Colorado Springs population.

On Friday Hubka was preparing a mock-up of public instructions that will be delivered to Colorado Springs newspapers in a "camera-ready" — or ready-for-printing — state. They detail relocation routes for persons in various parts of the city. The routes go through Teller, Fremont and Saguache counties all the way to the southwestern corner of the state.

Hubka said he had been authorized to hire three other planners to accelerate the crisis-relocation project in Denver.

The Colorado Department of Military Affairs announced in its 1976 budget request that its "Nuclear Civil Protection Planning" program has assumed responsibility for the "orderly relocation of people from areas of potentially high risk from the direct effects of nuclear weapons, should national authorities elect to implement relocation plans and time and circumstances permit relocation, as well as the reception, care and protection of relocated people in low-risk host areas."

(Continued on page 24)

(Continued from page 1)

Last week the Colorado adjutant general, Brig. Gen. William D. Weller, endorsed the new concept as "probably the best thing that we've come up with yet." Studies have shown, he said, that after a planned evacuation about 200,000 Denverites would remain behind to operate crucial communications, supply, utilities, fire control and law enforcement agencies. More than 1 million persons could be systematically relocated in three days, studies have shown.

"Sure there would be traffic jams," Hubka said. "But it wouldn't be insurmountable."

Of the 200,000 persons in the "key worker status," remaining behind, about 65,000 would be killed and 93,000 injured by a warningless attack. If they had time to reach shelters, the survival rate would soar, according to other studies.

Schlesinger had said successful evacuation of American cities was feasible and would save 70 million American lives "in an all-out Soviet attack on the United States, over and above those saved by in-place protection options (shelters and basements)."

The regional director of the Defense Civil Preparedness Agency, David G. Harrison, and two of his subordinates, last week discussed some of the options being considered for the Denver evacuation plan. A rough outline of proposed relocation areas has been made. Denver residents would be directed to go generally to the northwest or southeast. (Colorado Springs residents would be flooding the southwest. No one would be directed to the northeast because of the " proximity of the Warren Missile Complex near Cheyenne.)

The DCPA is considering designating specific routes to be taken by specific families or giving more general instructions based upon telephone prefixes. Someone with a prefix of 279, for example, might be instructed to take U.S. 6 west from Golden to I-70.

A State Patrol checkpoint near Idaho Springs then might give detailed instructions on which county to go to and where to get gasoline along the way.

A private organization of trucking firms called the National Defense Transportation Association, with Defense Department aid, is studying the feasibility of automatically dispatching full fuel trucks to the distant counties. The trucks would commute back to the cities for resupply until the national emergency had passed.

According to DCPA spokesman Jim Peterson, supermarket chains already have been asked to consider how they would resupply rural counties in the event of such an emergency. Moreover, they have been asked to consider which of their employes would have to remain in Denver through the crisis period to keep the supply line active.

Mountain Bell likewise has been contacted.

There are many potential problems. Some residents, particularly older persons, certainly would refuse to leave their homes. Weller noted that the governor, under the Colorado Disaster Act of 1973, has the power to legally implement the relocation plan.

Federal authorities think it unlikely that a direct order to get out of town would be needed. "The people will probably recognize that they had better go where the supplies are," Peterson said. One government planning document notes: "This means that all persons not authorized to remain in the risk areas should have left by the end of the third day."

At their host counties, the refuges would be told to wait until the President or governor ordered a return to their homes. And they should listen for a warning that attack is imminent, for then they would have to take precautions against radioactive fallout. The Defense Department estimates that most persons evacuated would survive even without food resupply. The food stocks already existing in homes would, through strict rationing, be enough to last all Coloradans for more than two weeks.

What about the "essential" employes who stay behind?

They would be housed in the best of the now existing shelters when they weren't on the job. The Defense Department believes that about 20 per cent of the population of a city could keep production, communication and supply going at a rate capable of supporting the rest of the population during a brief crisis period.

Even considering the mind-boggling problems that could arise in such a massive evacuation, the federal and state officials are convinced that with careful planning, it can work.

Meanwhile, the federal authorities refuse to concede that the relocation emphasis is going to hurt the old civil defense mainstay, the national shelter program that got its impetus from the Berlin Wall construction in 1961 and the Cuban crisis the next year.

Crisis evacuation and the shelter program, Harrison said, are meant to go hand in hand. The shelters are still to be used in the event of warningless attack.

But the whole "attack concept" has changed, Weller said. The consensus among experts is that no attack will come without a period of deteriorating international relations first, and that should be enough warning to launch the crisis relocation process. That isn't to say that the United States is letting down its guard against surprise attack, the adjutant general said.

Meanwhile, supplies in the nation's old shelter system — primarily in the basements of public and other large buildings — are 10 years old and deteriorating. The federal government isn't replenishing the millions of food and medical kits stored in case of nuclear attack, Harrison said.

In Denver after the Berlin and Cuban incidents, civil defense workers and volunteers stocked enough federally purchased supplies to care for 500,000 persons for two weeks. Because of deterioration, theft and other factors, the amount is now down to a supply for 350,000 to 400,000 persons, according to Denver emergency preparedness officer W. J. Allen. The drugs in the medical kits have outlived their shelf lives, and many are worthless.

Allen said he likes the crisis-relocation idea because "the enemy isn't just going to walk over and pull the trigger. I think there would be a period of deteriorating conditions."

But he said he is discouraged that shelter supplies aren't being replenished. "It's a sign of the declining awareness and emphasis" on civil defense measures, he said. " If it was good to put those things in once, it's good to do it again."

CASE STUDY: STATION KMGH-TV, CHANNEL 7

Situation #3

Tom Hiland, a television news reporter on KMGH-TV in Denver, called the Regional Director and said that he was interested in doing a series of four television reports on Crisis Relocation Planning in Colorado and arranged for an appointment.

Hiland arrived at the Regional office and met with the Regional Director, Dave Harrison; Director of Field Services, Jack O'Grady; and Chief of Systems and Plans, Frank Mollner. Hiland indicated that his interest was prompted by the article in the Rocky Mountain News and he wanted to do something graphic on the subject. He said he would want to go to Colorado Springs and would also interview State officials.

A video tape of an interview with Dr. Leon Goure of the Center for Advanced International Studies, University of Miami, Coral Gables, Florida, on the subject of Russian civil defense, training, and evacuation planning was played for Hiland. He was much impressed, and asked to borrow the tape to make an excerpt for his series. The Region agreed. He was also provided with background printed materials on the purpose of CRP. He took this material and said that he would plan the production of the reports.

Question: What action would you take after the reporter leaves to prepare for the best possible outcome of this project?

Response #3

The first step taken was to notify the State Director and his NCP planner, Frank Hubka, of Hiland's plans. They were personally briefed on the interview that had taken place at the Region. General Weller elected to prepare a brief status report on the CRP project to date for the Governor so that he would be aware of events in light of the proposed television coverage on the station with the largest share of the news audience in Denver. To make certain that Colorado Springs Civil Defense Director Pettie was not taken by surprise a second time, he was informed of the television project and was asked to arrange a meeting of local and county officials so that they would be brought up to date on CRP in the event Hiland decided to do interviews in Colorado Springs and El Paso County.

Discussion #3

The fact that a television station had decided to do a series of four reports of five minutes on the evening news in Denver had some real impact on those in the civil defense program. This has been a low-key, low-profile effort, and the people involved do not do business with television stations every day. There was some apprehension and anxiety about how the story would be treated. Would it be handled seriously, would it be treated lightly or satirically? No one knew. So the decision was made to leave

as little to chance as possible. Again, the decision was made to work honestly and openly with the reporter and give him complete access to information. General Weller decided it would be wise to prepare his Governor and the State planning staff with information so they would be aware if not knowledgeable. Pettie in Colorado Springs appreciated the opportunity to set up the briefing for his officials to prepare them and avoid embarrassment.

It is obviously wise to coordinate with the various levels of government so that all are pulling together rather than separately. The idea is, of course, to present a united front. That may always be possible.

Situation #4

Pettie set up a meeting in Colorado Springs in March with the Mayor, City Manager, Chief of Police, Fire Chief, Department of Public Works, and other top city officials. He also invited El Paso County and Teller County Commissioners. They all turned up at the EOC and listened intently to the briefing. Following the briefing the Mayor had a number of pertinent questions. He asked that there be periodic meetings to inform the city of the status of the project.

Question: How often do you think a report should be made to the Mayor?

Response #4

It was determined that the next meeting would be held on June 30, and that quarterly reports would be given to the Mayor if progress justified them. If not, he would be so advised.

Discussion #4

One interesting aspect of this meeting was the evidence that in anticipation that a television crew might visit the city and a reporter might interrogate officials, all of them attended the meeting and listened carefully. So the possibility of a media visit can help meeting attendance.

Situation #5

Following the briefing, the party returned to the Region Six FRC where they learned that the television crew was over at the Colorado emergency operating center ready to film interviews. Hubka, the State Planner, had just returned from Colorado Springs and he was the only expert on this project on the State staff. The State requested that Regional people and the Planner come over to assist with the interviews.

Question: Should the Regional people be present and participate in the television interview at the State EOC?

Response #5

The decision was made for Hubka to go on to the State EOC and work with the State staff on the interview. It did not seem necessary for Regional people to be on the scene and to give the impression that the State was completely dependent on the Region.

Discussion #5

The whole affair turned out to be a false alarm. Hiland had alerted the State, and the Adjutant General and a number of other people waited around for a couple of hours, but Hiland didn't show up. The next day, Hubka called Hiland and tried to get the TV reporter to coordinate overall activities of the filming and taping with him so that things could go more smoothly.

Situation #6

Hiland called Hubka and requested that the Colorado National Guard provide him with a helicopter for a flight down the Front Range of the Rocky Mountains to photograph the targets shown in TR-82 (the DCPA booklet on High Risk areas). He also indicated that he would like to land at the North American Air Defense Command operational headquarters in Cheyenne Mountain (Colorado Springs) to get some establishing film shots of the entrance to the headquarters.

Question: As an NCP Planner, the Adjutant General asks you for your recommendations as to whether he should furnish the helicopter. What would your response be, and what, if any, actions would you take?

Response #6

The decision was to provide the helicopter for the flight, and Hubka coordinated the arrangements for the flight with Hiland and his photographer. He also made certain that NORAD was advised of the possible landing at their headquarters and of the purpose of the filming.

Discussion #6

The decision to provide the helicopter was not as easy one, and would usually be made differently by different people. There are obvious risks involved and in the event of accident, National Guard is wide open to criticism. Television stations are commercial operations and this one in Denver has a large operating budget. They can afford to rent aircraft. The decision is strictly a matter of judgment for each State. In this case it worked out well and the photographer got some excellent serial views for the series.

Situation #7

On the night of April 5, at 9:30 p.m., Hiland called Hubka at his

home and asked that he be ready to leave for Colorado Springs the next morning at 9:30 to film a sequence which would depict a person leaving Colorado Springs for Woodland Park in Teller County, a host area. Hubka agreed to be ready.

Question: The first thing the next morning, what actions would you take to prepare for the trip to Colorado Springs?

Response #7

The next morning telephone calls were made to Strickland N. Campbell, the Public Affairs Administrator of Colorado Springs, to inform him of the trip so that he could advise local government officials (CD Director Pettie was in Los Angeles). The North American Air Defense Command public information officer was also informed that the KMGH television vehicle would drive up to the entrance of the NORAD Command Center in Cheyenne Mountain and shoot some film of people entering and leaving NORAD.

Discussion #7

Again, it is very important to keep everyone informed and prevent unpleasant surprises. People are generally anxious when working with television reporters, especially public officials. Air Police at NORAD do not like surprises either. They are apt to be hostile when a car drives up to their facility, a photographer gets out with motion picture camera and starts shooting film. It is always wise to coordinate with them.

Situation #8

Hiland called Hubka and indicated that he wanted to shoot some film of fallout shelters in Denver. Hubka alerted Colonel Allen of the plans and Allen was ready for him.

Question: As Denver CD Director, how would you plan to receive the television crew? Would you make any specific arrangements?

Response #8

Colonel Allen took the opportunity to show Hiland through his EOC, explain his entire operation to him, and then made available his Shelter Officer, Gene Orton, to discuss shelter supplies in detail with Hiland. The visit went well.

Discussion #8

Colonel Allen, who was then Denver CD Director, had had a great deal of experience working with the news media. He recognized their visists not only as a challenge, but as an opportunity to get his point of view across. He seldom failed to do that. Hiland later expressed his admiration for Allen. Again, it is important to coordinate and give people advance notice so they can prepare.

Situation #9

On April 7, in a discussion with Hiland about the loan of some government films on nuclear disasters, he mentioned that they intended to title the series reports "Planning for Dommsday."

Question: You are the NCP Planner and Hiland has advised you of his intention to use this title. How would you react?

Response #9

Region Six representatives O'Grady and Mollner make arrangements to visit Bob Burton, the News Director of KMGH, to attempt to persuade him that the title was provocative and misleading. Burton informed them that the title had already been entered in the TV Guide and other advertising promotional materials and that it was too late to change. He further indicated that he felt that the Region 6 representatives were over-reacting to the title, that they should see the series before they made a judgment, and that he would like to hear from them afterwards.

Discussion #9

The visit to the television station to protest the title may have been an overreaction. However, there was a strong feeling that this was an editorial comment, not a title. It was obvious the station was trying to use the title to attract viewers. Afterwards, Regional people conceded that the title did no harm. But they felt that their visit to the News Director caused a little extra care in the editing before the series was broadcast.

Situation #10

Hiland requests a filmed interview of about five minutes with Regional Director Harrison. He schedules it for mid-afternoon on Wednesday, April 7. However, filming in Denver delays him and he calls the Regional Director to postpone the interview several times. Finally, he asks if he can arrive at the Region at 6:30 p.m.

Question: You are the Regional Director. What is your response?

Response #10

Harrison waited patiently for Hiland to arrive at the Region, recognizing that he was legitimately busy and that it was important to get the interview done.

Discussion #10

An interesting technique was employed by Hiland in conducting the interview. Earlier in the day he had given the Regional Director three questions to think about and to plan his response. During the day the Regional Director made notes and thought about these questions. He had

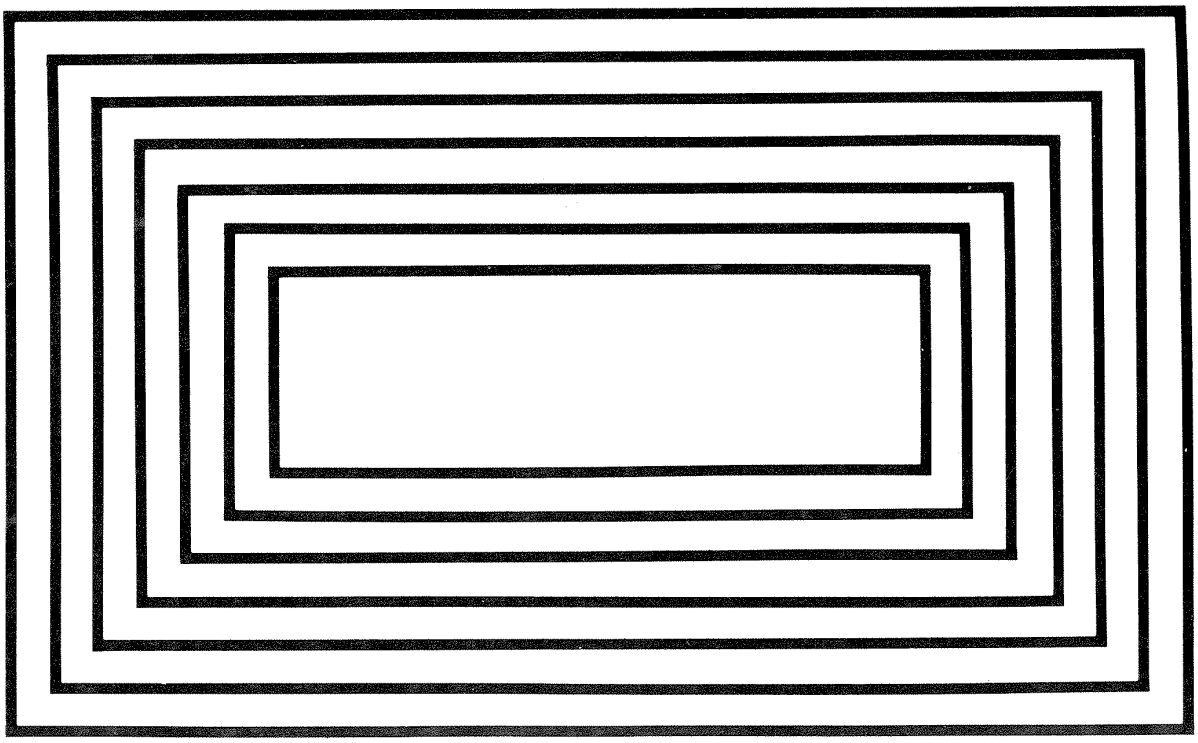
them in mind in the sequence they were given to him.

during the interview, when the lights were on the film was rolling, Hiland abruptly changed the order of the questions, asking the last one first. Hiland later explained that he had done it in order to get a more spontaneous and natural reaction, rather than a canned-type response. The four-part television series turned out quite well.*

* There is a 15-minute videotape of the news segments spliced together which is available to be played in a classroom for training purposes. The errors are as follows: (1) The figure $113 million for "next year's civil defense budget" is mentioned. Actually, at that time (April 1967), the FY 1977 appropriation for DCPA was unknown, pending completion of congressional action (it turned out to be $82.5 million). If the reference to civil defense budget meant State and local expenditures as well, this spending figure can only be estimated. (2) Warren Air Force Base in Wyoming and Colorado is essentially a strategic nuclear target, not a tactical target as stated. (3) The telecast states high-risk targets in the TR-82 booklet have a "50-50 chance" of being attacked, which implies a prediction they will be attacked. DCPA does not predict these areas will be hit. If they are, however, DCPA considers these areas as subject to a 50 percent or greater likelihood of receiving direct weapons effects.

A PUBLIC INFORMATION GUIDE

for CIVIL PREPAREDNESS COORDINATORS



U. S. CIVIL DEFENSE COUNCIL

AN INTERNATIONAL ASSOCIATION OF LOCAL CIVIL DEFENSE ORGANIZATIONS

A PUBLIC INFORMATION GUIDE

FOR

CIVIL DEFENSE COORDINATORS

Published

by the

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CONTENTS

FOREWORD

THIS HANDBOOK is intended primarily for the civil preparedness coordinator who finds he must serve as his own PIO.

The primary duty of the public information officer (PIO) in civil preparedness is to inform the public, through the mass media and other means, about plans and preparations for community protection in disaster.

The PIO (or coordinator acting as one) must also be prepared to respond in an emergency to widespread and urgent requests from the media and public for life-saving information and instructions.

It is important to remember that the news media, like civil preparedness organizations, see public service as a primary mission, and, if properly approached, will be a willing ally in informing the public about local readiness measures.

This handbook shows how to set up channels of communication with the media, and covers the techniques for getting the civil preparedness story into print or on the air. These techniques, basically, consist of ways in which the PIO can help editors and reporters do their jobs more easily and quickly, and win their continuing support and cooperation.

The duties of the civil preparedness public information officer covered wide areas ranging from his role in the locally-oriented readiness program to his responsibilities as part of a nationwide network of emergency organizations for coping with the effects of a nuclear attack on this country.

To meet this national defense responsibility, the local PIO or coordinator through his State office, can get Federal assistance and guidance from the Defense Civil Preparedness Agency of the Department of Defense. DCPA works with the States and communities across the nation to help them establish, improve, or expand capabilities for handling peacetime or wartime emergencies.

In addition, DCPA is authorized by Congress, in the Federal Civil Defense Act of 1950, to "publicly disseminate appropriate civil defense information by all appropriate means . . ." DCPA depends heavily on the local PIO to assist in informing the American public about protective measures for surviving in nuclear war.

The preparation and distribution of this Guide by the Council, with the cooperation of DCPA, demonstrates the joint local-State-Federal responsibility for strengthening civil preparedness in the United States.

Walter Sibley Jr.

President
United States Civil Defense Council

PART I:
The Public Information Officer

TO BE effective a PIO must know his program thoroughly. This requires that he work closely with decision-makers in his organization, and follow the continuing activities and changes taking place locally and nationally in civil preparedness.

The PIO must be thoroughly familiar with the workings of his local government, with his community structure, and with the news service available to him.

The following are basic suggestions for developing closer cooperation with the news media:

As a first step, list—

a. all newspapers serving the area;

b. the radio, TV station (or stations), and Cable TV Systems covering the community, including those in nearby cities and towns with strong signals reaching into the community;

c. Magazines and newsletters, such as those published by business and industry, volunteer service, organizations, civic groups, social clubs and schools. These publications are willing to devote considerable space to public service announcements, news of community government activity, and public health and safety information.

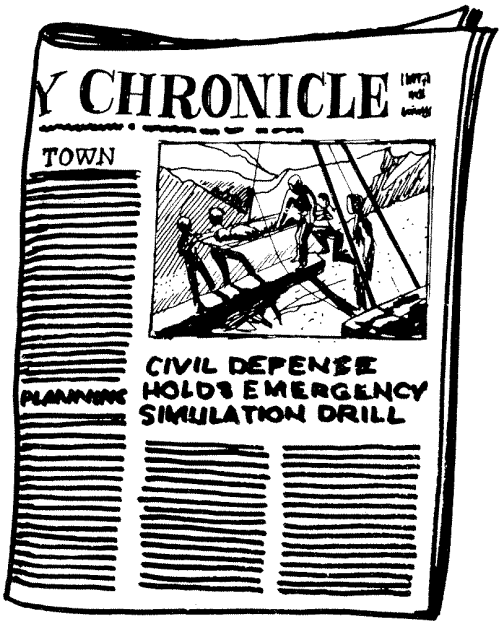
Second, set up a card index file listing the publications, and the editors and reporters responsible for civil preparedness news. The same should be done for Cable TV systems, television, radio stations, and magazines and newsletters. Next, make a personal visit (not telephone call) to those listed in your card index file. Explain your purpose, and make yourself available to them for information on local civil preparedness. Give them your name, your office and home telephone numbers, and the names of others in your organization who may be contacted in your absence. It's a good idea to have business cards printed for this purpose.

Another item useful to news media representatives is an organization chart or list of people responsible for operation of the emergency program in your community, giving full names, titles, addresses, and telephone numbers.

If your community has an Emergency Operations Center, prepare an organization chart listing the names and responsibilities of all personnel who would be there in a major emergency. This would include the local government executive (mayor, city manager, supervisor, commissioner or selectman); the civil preparedness director; police and fire chiefs; the heads of local health and welfare services, and public works; and key officials of utilities, industry, and private voluntary service organizations, such as the Red Cross and Salvation Army.

When emergency exercises are to be held, be sure the news media are informed well in advance—giving date, time and place of the event.

PART II:
The Print Media



THERE IS NO better way to approach a newspaper editor or reporter than to show you understand the needs of his trade—and that you will do all you can to see he gets the facts he needs.

When you prepare an information release, *double space* the copy. This gives an editor room to make changes. Always list the name and telephone number of a person to contact for additional information.

Be sure to spell names *correctly,* and always use *full* names—not John Smith, but John K. Smith; nor Joseph Jones, but Joseph H. Jones. Middle initials are important; there may be several John Smiths or Joseph Joneses in your community.

It is always best to hand carry your news release to the editor responsible for civil preparedness news, to go over the details with him to save him the trouble of checking back with you. Of course, in emergency situations, this usually can't be done—and information must be given over the phone.

Establish a file of biographical sketches of key government personnel involved in or related to civil preparedness operations, including photographs (preferably head and shoulders shots).

PART III:
Radio and Television

WHEN SEEKING radio or television time, a PIO might ask himself these questions:

1. What have I to tell the public that is new and pertinent?
2. Is my story properly prepared?
3. Am I prepared to present it?
4. Who is the person I should see?
5. How effective will my story be in explaining the need for preparedness?

News must be current and complete for radio and TV use, where it must move quickly and time is costly to the station, even when offered as a public service. You must recognize that news value is short-lived; what might be acceptable in a newsroom today will be rejected tomorrow as "stale" and irrelevant.

Try to get your news aired or your appearance scheduled on a day when you know of no upcoming event which would tend to overshadow your information. If your story or appearance is preempted, ask that another time be scheduled. Remember to bring your material up to date for the new scheduling, if necessary.

In providing news releases, offer the same material to all stations, and tell each one you are

doing so. The language may vary, but the subject matter must be the same.

Radio and TV newsrooms always have an oversupply of news. *Selection* of what goes on the air is the problem. You'll get a chance to tell your story in due time if you are cordial and friendly in asking for air time. Do not be bashful. You, as the representative of local civil preparedness (and your director or coordinator) are important in your community. Other public officials and community leaders, and the general public, need to know the status of community preparedness and what is being done to enhance it, and they need personal preparedness information as well.

Television can always use good visual materials. Supplement your presentation with photographs, charts, and other visuals, and it will be more interesting. Photographs should show action if possible. Dull-finished 8 x 10 photos are preferred, as they don't reflect a glare from the TV lights.

The man to know at your TV or radio station is the news (or program) director. He corresponds to a newspaper's city editor. Send your news releases to him. He's also the man to call to ask for spot coverage or a studio appearance. Another person with whom you should become well-acquainted is the station manager.

Occasionally, you will have an opportunity to be interviewed on local radio or TV on a spot-news basis, or on a scheduled program—perhaps a panel show. As a government official, you qualify as a member of panels dealing with civic matters. People who work with you in civil preparedness, including volunteers, also can be valuable as panel members. These appearances on local radio or television build a progressive "image" of civil preparedness—and help create higher awareness of the need for your program.

If you are preparing for an interview on TV or radio, know your subject well enough to talk without a script. A list of questions you would like to have asked is useful, but will not always be accepted. Interviewers like to phrase their own questions, and you must be prepared to answer them fully and accurately.

It can be most helpful to discuss your program with the interviewer before the interview or panel presentation. Ask the station representative to review some of your publications and an organization chart before your discussion takes place.

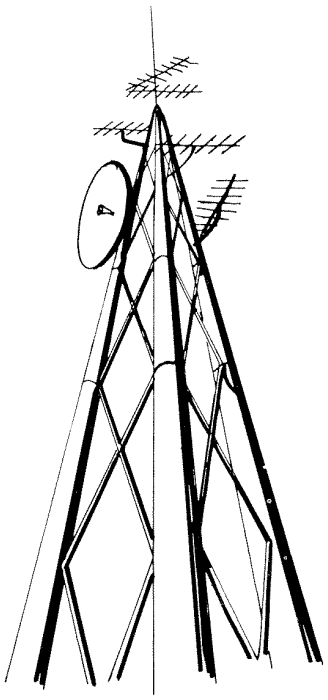
If the interviewer has failed to touch on some important facet of civil preparedness, you may get into it with, "You may like to know . . ." or similar statement. While on the air, you may be allowed to cite the various informational items available to the public. If on television, show your printed materials. In either case, give the

address and telephone number of your agency so people can contact you for additional information.

If more than one station asks for an interview, let each know when the other interviews are scheduled, and in the separate presentations, try to vary your material.

Spot announcements prepared for radio and TV shouldn't be over 60 seconds. Shorter spots of 10, 20, or 30 seconds are more acceptable and fit in better with station programming. Spots should be written in conversational style, should be easy to read, newsworthy, and have retention value.

It takes time to educate the public to the need for disaster planning—but it's a continuing need. Radio and TV have strong impact in bringing your message directly to the viewer or listener and should have a major place in your public relations effort. To the stations, the coverage constitutes public service—and they will help you make presentations interesting as well as informative.



PART IV:
Cable Television

ONE OF our newest mediums is Cable Television. Unlike broadcast TV, this medium relies upon the use of lines or coaxial cable to transmit signals within a closed area.

Cable systems vary in size from a few hundred users to systems with as many as 40,000 subscribers. Cable TV, being a new medium, is very aware of its obligations in the field of public service.

While the majority of the cable TV systems do not originate programming, those that do are looking for ways to be of service to their community. You can depend upon the systems that originate programming to handle your press releases in an almost hungry manner, since very few have a sophisticated news department. They are glad to receive articles of public interest and information.

While only a few of the cable systems are able to originate programming, most have equipment that can display messages to their subscribers. While this equipment is used mostly for business communications, a large number of the available spots are set aside for public service announcements.

Contact the manager of your local cable system, and enlist his help in promoting civil defense in a continuing manner through the use of his system. You will also find that the manager knows most of the television broadcasters in your area and can be an asset to your PIO program.

PART V: Outdoor Advertising

BILLBOARDS ARE one of the most influential information mediums.

However, because this medium over the years has saturated highways and some scenic areas, resentment has developed against billboard advertising among environmentalists, conservationists, and civic groups. Therefore, before launching a program to promote civil preparedness through bill boards, check on the attitude of government and civic leaders in the community.

The cost of renting commercial billboard space varies over the United States, according to size, location, and in most instances, availability; but the rental cost usually precludes civil preparedness use. It's useful to know, however, that some outdoor advertisers provide public service space at only "paper cost." Paper cost for five boards designed to your specification should not be over $125. It is also possible that some outdoor advertisers may be willing to absorb this cost in their public service budget.

PART VI: Handbills

HANDBILLS OR "handouts" are time-tested forms of information dissemination. Distribution usually is a simple matter. Scouts and similar youth groups are always looking for worthwhile public service projects.

To set up a distribution effort, confer with youth leaders in your area, and they will usually supply the needed volunteers.

PART VII:
Program Presentations

DEVELOPING SUPPORT for civil preparedness requires considerable spadework.

The PIO must show initiative and familiarize himself with the interests of leaders and opinion-makers in the community. In addition to working with the news media, you must develop close relationships with the leadership of civic, fraternal, and veterans organizations, youth groups, educational institutions, churches, labor unions, and industrial and business firms and associations. This full coverage of your community will gain interest in and support for your program, and provide sources of organized volunteers in emergencies.

To supplement local educational and informational materials, the Defense Civil Preparedness Agency has available publications, motion pictures, and slide presentations. The motion pictures and slides can be viewed by the public by arranging for local public service television time; or you can present them at meetings of local groups. Radio spots are also available from DCPA, as well as publications to be used as handouts.

In arranging film and slide presentations before local gatherings, it is important that you or another knowledgeable representative of your organization be present to speak briefly and answer questions.

The DCPA Publications Catalog (MP-20) and the Motion Picture Catalog (MP-6) show what is available which best meets the needs of your audiences. You should check also with your State civil preparedness agency to see what informational materials are available there.

DCPA Information Bulletins, news releases, and the bimonthly magazine "Foresight" keep you informed of Federal activities which support your local effort. Make sure your organization is receiving these; if not, contact your state or a Regional DCPA office.

The guidelines set forth in this handbook will help you accomplish your duties in an acceptable manner, but to broaden your knowledge of the civil preparedness program, develop your professionalism, and keep up to date, you should take advantage of courses offered at or by the DCPA Staff College in Battle Creek, Michigan. You should also encourage others with responsibilities for preparedness to avail themselves of this educational opportunity.

Knowledge, experience, and dedication are the triple keys to success in most endeavors, including civil preparedness. Webster defines KNOWLEDGE as follows:

1. Familiarity gained by actual experience; practical skill.
2. Acquaintance with fact.
3. The fact or state of understanding; clear perception of truth; cognition.
4. That which is granted and preserved by knowing; enlightenment; learning.

It is important in your public information work that you fit into Webster's definition if you hope to convey to others what they should know about the Nation's civil preparedness program.

Forearmed with knowledge, you will gain experience. Dedicated effort will help you become a professional—not only in public information, but also in all aspects of civil preparedness.

You play a significant role in protecting lives and property in your community.

PUBLIC INFORMATION CONTACTS

NEWSPAPERS

Name	Address	Phone